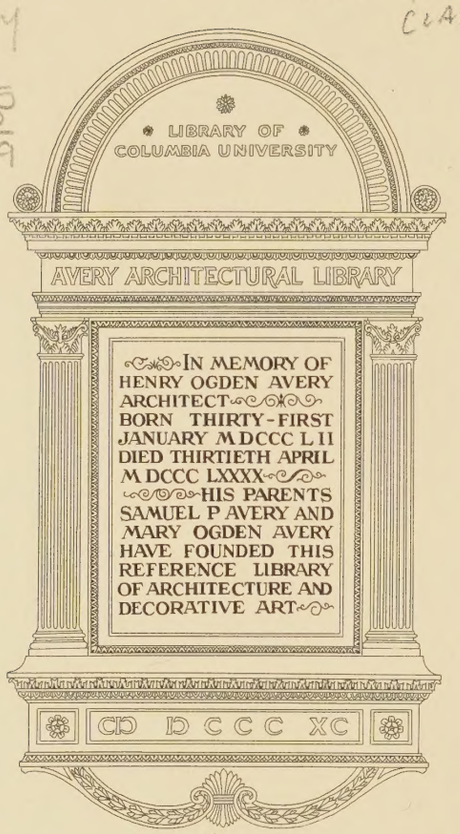
CASEMENT & STEEL WINDOW CATALOGUE

HENRY HOPE & SONS LD
BIRMINGHAM

Avery
AT
8805
H772
1909

T.C.C.L.-P.
CLASSICS



WINDOWS

Evan J. Tudor bequest

H. HOPE & SONS LD

ESTABLISHED A.D. 1818

Head Office and Manufactory:

55 LIONEL ST BIRMINGHAM

Telegrams: "CONSERVATORY, Birmingham."

Telephones { 998 / 999

LONDON OFFICE:

39 Victoria Street, S.W.

Telegrams: "BUNTLINE, London."
G.P.O. Telephone: 78 Victoria.

MANCHESTER:

21 Spring Gardens

Telephone: No. 4290 Central.

GLASGOW:

134 St. Vincent Street

Telegrams: "CASEMENTS, Glasgow."
Telephone: No 1540 Argyle

Copyright: Entered at Stationers' Hall.
All previous Lists cancelled. *January 1st*, 1909.

METAL CASEMENTS AND WROUGHT-STEEL SASHES.

A SECOND EDITION OF OUR CATALOGUE DATED APRIL 2nd, 1904, WITH SOME ALTERATIONS AND ADDITIONS.

We have always maintained that a properly constructed wrought metal window is superior in every way to windows made of wood, and we have endeavoured to make this catalogue sufficiently comprehensive to shew clearly all the various grades of casements and sashes which we make.

Our patterns range from the best weather-tight window that can be produced by fine machinery to the most simple form of cottage casement, and afford a very wide selection in design and price.

Since the last issue of our catalogue we have completed the erection and equipment of our new factory at Smethwick, where we have an ample reserve of space and machinery to deal with the exceptional demands that occur from time to time in the building trade.

Our business policy will remain as it always has been—whatever article we manufacture shall be the best of its kind or grade. "Hope's windows" are recognised as the standard of high quality, and we intend that this reputation shall remain with us.

We are continually exploiting new ideas both in design and manufacture, and nothing that our knowledge & experience indicates as likely to improve our products is left untried.

In such of our work as admits of decoration it will be noticed that there is no highly elaborated detail, not that we think this undesirable, but because we are convinced that such work must be specially produced for its position if it is to be tolerable. Our endeavour is to supply articles of such refinement and sober detail as will permit their use in practically any position, without violence to their surroundings.

January, 1909. 55 Lionel St., Birmingham

INDEX

2, PREFACE.
3, INDEX.
4, 5, INTRODUCTORY NOTES, TERMS, etc.
6, 7, SECTION 1. Casement & frame opening outwards.
8, 9, „ 1a. „ „ „ inwards.
10, 11, „ 1c. "Cleaning" casement.
12, 13, „ 2. Casement & frame opening outwards.
14, 15, „ 2a. „ „ „ inwards.
16, 17, „ 2c. "Cleaning" casement.
18, 19, „ 3. Casement & frame opening outwards.
20, 21, „ 3a. „ „ „ inwards.
22 to 27, „ 4, 4a, & 4c. Opening outwards or inwards or as "cleaning" casement, all forms adapted for fixing in the same rebate.
28, „ 5. Moulded casement & frame opening outwards.
29, „ 6 & 6a. „ „ „ „ „ and inwards.
30, 31, FRENCH CASEMENTS & FRAMES opening outwards.
32, 33, „ „ „ „ inwards.
34, 35, "GARDEN CITY" CASEMENT without frame (Section 8).
36, 37, SECTION 9. Casement without frame opening outwards.
38, 39, SWINGING CASEMENTS. Sections 14 & 15.
40, 41, „ „ „ 11 & 13.
42, 43, HOPPERS & HOPPER CHEEKS.
44, 45, HOSPITAL WINDOWS.
46, 47, FIXED LIGHTS.
48, CABIN HOOK & HOPE'S PATENT TWO POINT HANDLE.
49 to 60, CASEMENT FITTINGS.
61 to 66, OPENING GEAR OF ALL KINDS.
67, STEEL SASHES. Preface.
68, 69, „ „ 2in.
70, 71, „ „ 1⅝in.
72, 73, „ „ 1½in.
74, 75, „ „ For fixing in ferro concrete.
76, CELL WINDOWS & FIRE ESCAPE WINDOWS.
77, POWER STATION WINDOWS.
78, WELDING applied to Hope's sashes and casements
79, SECTIONS OF OUR BARS KEPT IN STOCK FOR WINDOW CONSTRUCTION.
80, 81, *INSTRUCTIONS FOR ORDERING.*
82, INSTRUCTIONS FOR FIXING & GLAZING.
83 to 87, LEADED LIGHTS & PAINTED GLASS.
88 to 112, PHOTOGRAPHS OF BUILDINGS, shewing the application of Hope's metal windows.
113, DOOR FURNITURE, etc.
114, LEAD WORK.
115 to 118, PATENT GLASS ROOFING, LANTERN LIGHTS, CONSTRUCTIONAL WORK, etc.
119, HORTICULTURAL BUILDINGS.
120, HEATING & HOT WATER SERVICES.

INTRODUCTORY NOTES

Our Sections

Our three principal ranges of Sections 1, 2 & 3 remain as before. All these are made to open outwards, hung at side or at top, or to open inwards, hung at side or at bottom, the inward opening sections being known as 1a, 2a and 3a. Sections 1 & 2 are also made as "*Cleaning Casements*" hung on vertical pivots, and are known as 1c and 2c. A new range of Sections, viz: 4, 4a & 4c, has been specially designed to allow of all forms of this casement opening outwards or inwards, *being fixed in an ordinary outside rebate.*

Advice as to Sections to be employed

For large casements for buildings of importance, where great strength and absolute exclusion of the weather are a necessity, Sections 1, 1a and 1c are specially suitable.

For casements of moderate size, where first-class work is required, Sections 2, 2a and 2c are recommended.

For casements up to 3ft. 6in. high, for domestic work where economy is of the first importance, Sections 3 and 3a are suitable. They are weather-tight in all but the most exposed situations, and are quite as well made and highly finished as our more expensive sections.

Our "Garden City" casement, Section 8, is produced at a remarkably low price to compete with casements made of wood, and we feel sure that architects will appreciate this simple but thoroughly substantial metal casement for garden city buildings.

For wood mullioned windows for domestic work, where the higher price of casements with frames does not admit of these being used, our Section 9 is highly recommended.

Quality and Finish

Qualities 1 & 2 are the same in all respects with the exception of the fittings; quality 1 denoting gun metal fittings, quality 2 iron fittings. All joints are sandblasted after brazing, the metal surfaces oiled and painted two coats.

Quality 1a has gun metal sill bars, and the steel work is specially highly finished with a coat of hard setting enamel on the top of the two coats of paint. This quality meets the demand for specially good work where the cost of solid gun metal casements is prohibitive. The chance of trouble from corrosion is reduced to a minimum with quality 1a.

The care and trouble bestowed on finishing our work, together with the exceptional quality and character of our fittings, should be noted in comparing prices with other makes.

Bronze Metal Casements

For the highest class work we strongly recommend our "bronze" metal casements. We make these in all our sections, and will be pleased at any time to give exact estimates of the cost. It is not possible to make a general price list owing to the variations in the market price of copper.

Hope's bronze metal sections are an alloy of copper and tin produced by a special process, which gives a perfect and permanently beautiful surface, which never requires painting.

Composite Windows

We would particularly invite the attention of architects to our large composite metal windows, which have recently been used in important public buildings with so much success, instead of wooden sliding sashes. Photographs of some of these buildings are given at the end of the book. It is not possible, to make a comprehensive price list, but special quotations and full details will always be furnished upon receipt of enquiry.

Welding

We have put down a special plant for welding by the Oxy-Acetylene process, and we use this method in our construction wherever it is advantageous to do so. On page 78 we give some particulars of welding as applied to our work, and we particularly call attention to our "spot welding" system at the intersections of the bars in our steel mitre joint sashes.

Leaded Lights & Painted Glass

The importance of leaded glazing being manufactured in the same works and under the same supervision as the metal casements is now well recognised.

Dimensions

In sending sizes great care should be exercised that the instructions given on pages 80 and 81 are observed. Where a large number of casements are ordered, a practical representative will be sent free of charge to take sizes, and where this is done all responsibility is taken as to the work being accurate. In these cases we strongly advise our customers to arrange for the fixing and glazing to be done by our own men. Estimates will be forwarded on application.

Guarantee

Section 1 is guaranteed weather-tight in any situation. Sections 2, 4 and 6 are weather-tight in all but the most exposed places, such as south-west aspects on high positions, or close to the sea coast.

Section 3 is weather-tight in all ordinary situations.

In all cases our guarantee is subject to the details of the heads, jambs, and sills being approved by us.

TERMS OF PURCHASE

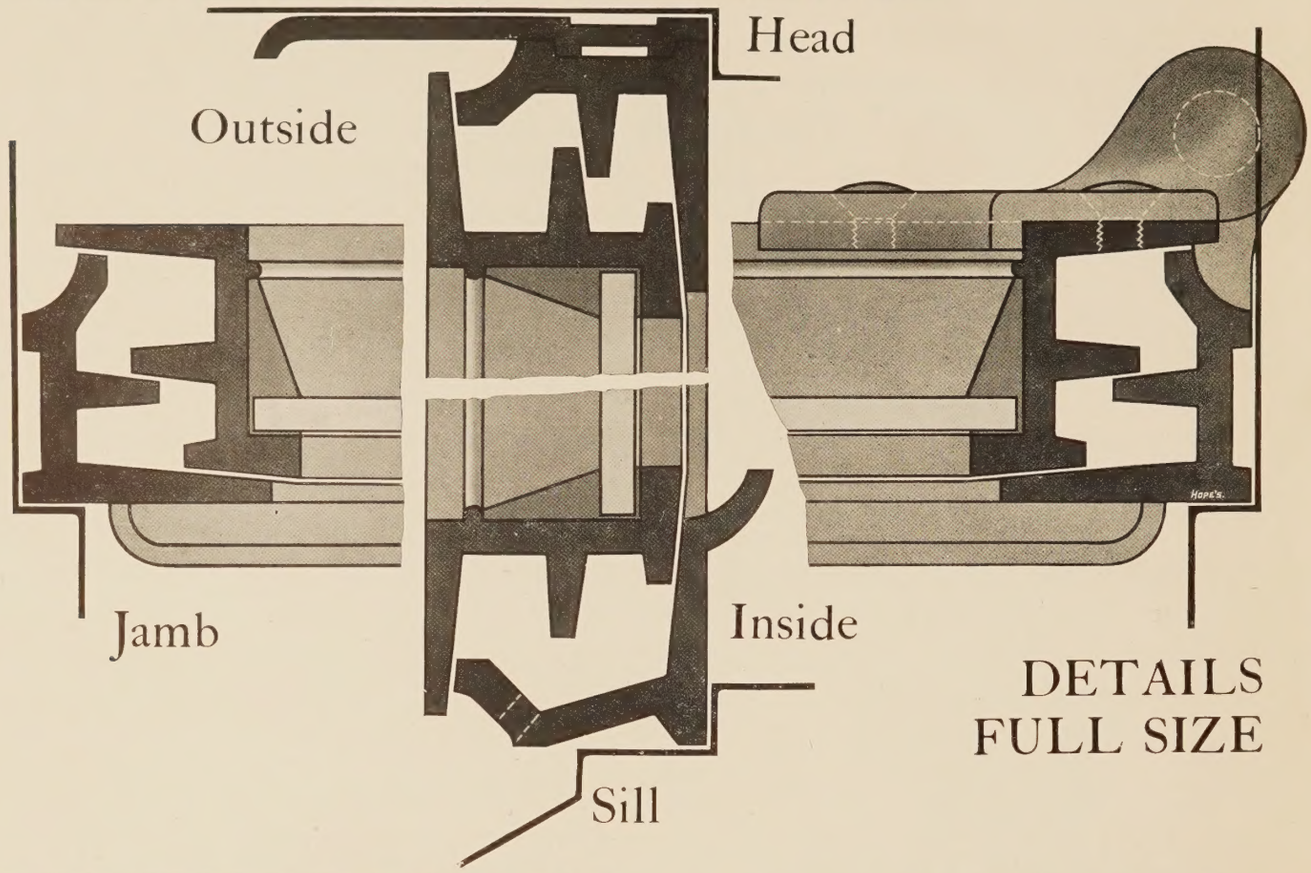
Cash on the 10th of the month following date of delivery.

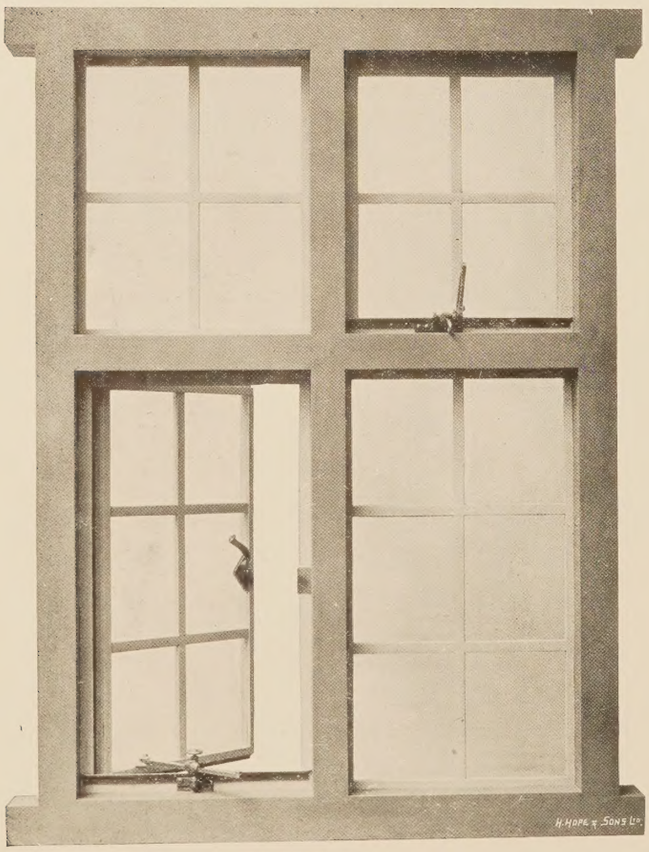
Carriage included for orders of £10 and upwards to any place within 100 miles of Birmingham; over this distance extra carriage will be charged.

Packing, where necessary, charged at cost price, value of cases allowed in full when returned in good condition carriage paid.

Special terms as to payment, etc., will be made for large contracts.

SECTION 1
OUTWARD OPENING CASEMENT WITH FRAME





Window frame, with one casement hung at side, quality 1 *(left hand), and one casement above transome hung at top, quality* 1 *fitted with jointed arm stay. Fixed lights of* ⌞ *section. All with rebated* ⊥ *bars and glazed with sheet glass.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are mild steel forgings bushed with gun metal and machined with great accuracy.

The fittings of each pattern are interchangeable, and of the best possible materials and workmanship; for full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

HOPE'S SECTION 1

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and either gun metal screw and swivel stay or peg stay.

QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead and one coat of enamel.

CASEMENTS of all qualities over 5 feet high are fitted with gun metal double grip bolts working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet.	Quality 1.	Quality 2.	Quality 1a.	Fixed Lights to Match	Fillets for Grooves.
Not exceeding 3ft. : :	45/-	41/-	57/-	14/-	2/6
,, ,, 3ft. 6in. :	47/-	43/-	59/-	15/-	3/-
,, ,, 4ft. : :	49/-	45/-	61/-	16/-	3/-
,, ,, 4ft. 6in. :	51/-	47/-	64/-	17/-	3/-
,, ,, 5ft. : :	56/-	52/-	70/-	18/-	4/-
,, ,, 5ft. 6in. :	67/-	62/-	81/-	19/-	4/-
,, ,, 6ft. : :	70/-	65/-	85/-	20/-	4/6

CASEMENTS HUNG AT TOP

For use over transomes of the same section and hung on gun metal hinges to open OUTWARDS, any size up to 3ft. high by 2ft. wide.

QUALITY 1. Oiled and painted two coats of white lead, and fitted with screw opener to work with cord, fixed to either side of the casement, or jointed arm stay, or Hope's patent cam opener or gun metal peg stay - - - - - - - - - 43/- each.

QUALITY 2. Fitted with iron peg stay - - - - - 38/- ,,

QUALITY 1a. As described above for casements hung at side - 53/- ,,

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 12/- ea. Circular on plan, 12/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 2ft. add 6d. per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

SPECIAL STAY. Hope's 223 gun metal stay (no projection inside when open) 3/- each.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates as detail on page 6 and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

SECTION 1a
INWARD OPENING CASEMENT WITH FRAME

Window frame with one casement hung at side, quality 1 (*left hand*), *and one hung at bottom, quality* 1. *Fixed lights of* L *section. All with rebated* ⊥ *bars and glazed with sheet glass.*

SPECIFICATION

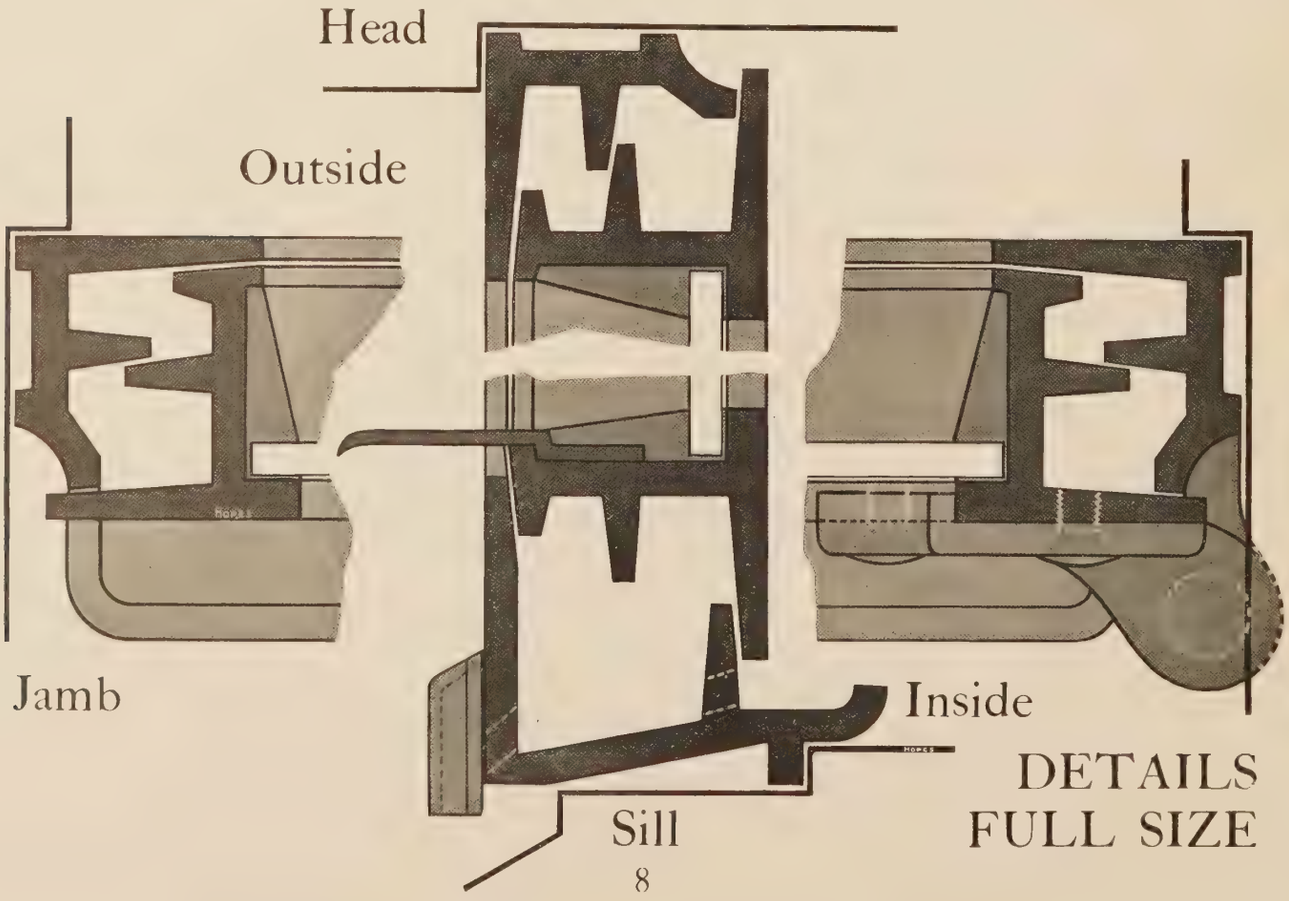
Each section is of mild steel made from rolls turned for our exclusive use. The weather bars are gun metal, and there is an ample condensation channel in the bottom rail.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plates are mild steel forgings accurately machined and welded to the casements. The hinges are gun metal of great strength, and entirely machine made with drawn steel pins.

The fittings of each pattern are interchangeable, and of the best possible materials and workmanship; for full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.



DETAILS FULL SIZE

HOPE'S SECTION 1a

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and gun metal swivel stay, or revolving cabin hook.

QUALITY 2. Finished and painted as last but fitted with wrought iron handle and iron revolving cabin hook.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead and one coat of enamel.

CASEMENTS of all qualities over 5 feet high are fitted with gun metal double grip bolts working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet	Quality 1	Quality 2	Quality 1a	Fixed Lights to Match	Fillets for Grooves
Not exceeding 3ft. : :	51/-	47/-	63/-	14/-	2/6
,, ,, 3ft. 6in. :	53/-	49/-	65/-	15/-	3/-
,, ,, 4ft. : :	55/-	51/-	67/-	16/-	3/-
,, ,, 4ft. 6in. :	57/-	53/-	69/-	17/-	3/-
,, ,, 5ft. : :	60/-	56/-	72/-	18/-	4/-
,, ,, 5ft. 6in. :	72/-	68/-	86/-	19/-	4/-
,, ,, 6ft. : :	75/-	71/-	90/-	20/-	4/6

CASEMENTS HUNG AT BOTTOM

For use over transomes of the same section and hung on pivots and plates to open inwards, any size up to 3 feet high by 2 feet wide.

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring catch and folding side arms - - - 43/- each

QUALITY 2. Fitted with gun metal spring catch and iron side arms 41/- ,,

QUALITY 1a. As described above for casements hung at side - - 53/- ,,

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 12/- ea. Circular on plan 12/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 2ft. add 6d. per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

NOTE.—All the list prices are for casements with square heads prepared to fix in inside rebates, as detail on page 8, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S SECTION 1c
CLEANING CASEMENTS

Window Frame with one cleaning casement, Quality 1, *and two fixed lights, all divided into panes with* T *bars and glazed with sheet glass. It will be observed that the outside of the casement and the two fixed lights can all be cleaned from the inside. Ample space is allowed for cleaning without an objectionable projection of the casement inside.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint.*)

The handle plates are mild steel forgings accurately machined and welded to the casements. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship. For full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection before being despatched.

SPECIAL POINTS

The weather bars are gun metal, and there is an ample condensation channel in the sill. The hinges are gun metal of great strength, and machine made with phosphor bronze pins. The full section of the casement is maintained throughout, and no portion is cut away.

NOTE.—This is our original pattern of cleaning casement which we introduced in 1898. *While the various reversing "patents" have (as we predicted) proved an utter failure, and have for the most part disappeared, except from the memory of the unfortunate people who were persuaded to use them, Hope's cleaning casements have given universal satisfaction.*

Our claims for SAFETY, ECONOMY and DURABILITY have been amply justified.

Reversing casements with movable parts even when these are in good order are very troublesome in use, and it has been proved conclusively that any movable devices are speedily rendered totally unserviceable with a little wear.

There are no movable parts in Hope's cleaning casement, and its merit lies in simplicity and perfect construction. The opening and closing movements are the same as in an ordinary casement, and there are no reversing devices which can be left unfastened by a window cleaner.

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, as detail on page 11, *and to receive plate glass in one sheet.*

IMPORTANT.—For instructions as to ordering see pages 80 *&* 81.

HOPE'S SECTION 1c

CLEANING CASEMENTS

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and either gun metal screw and swivel stay or peg stay.

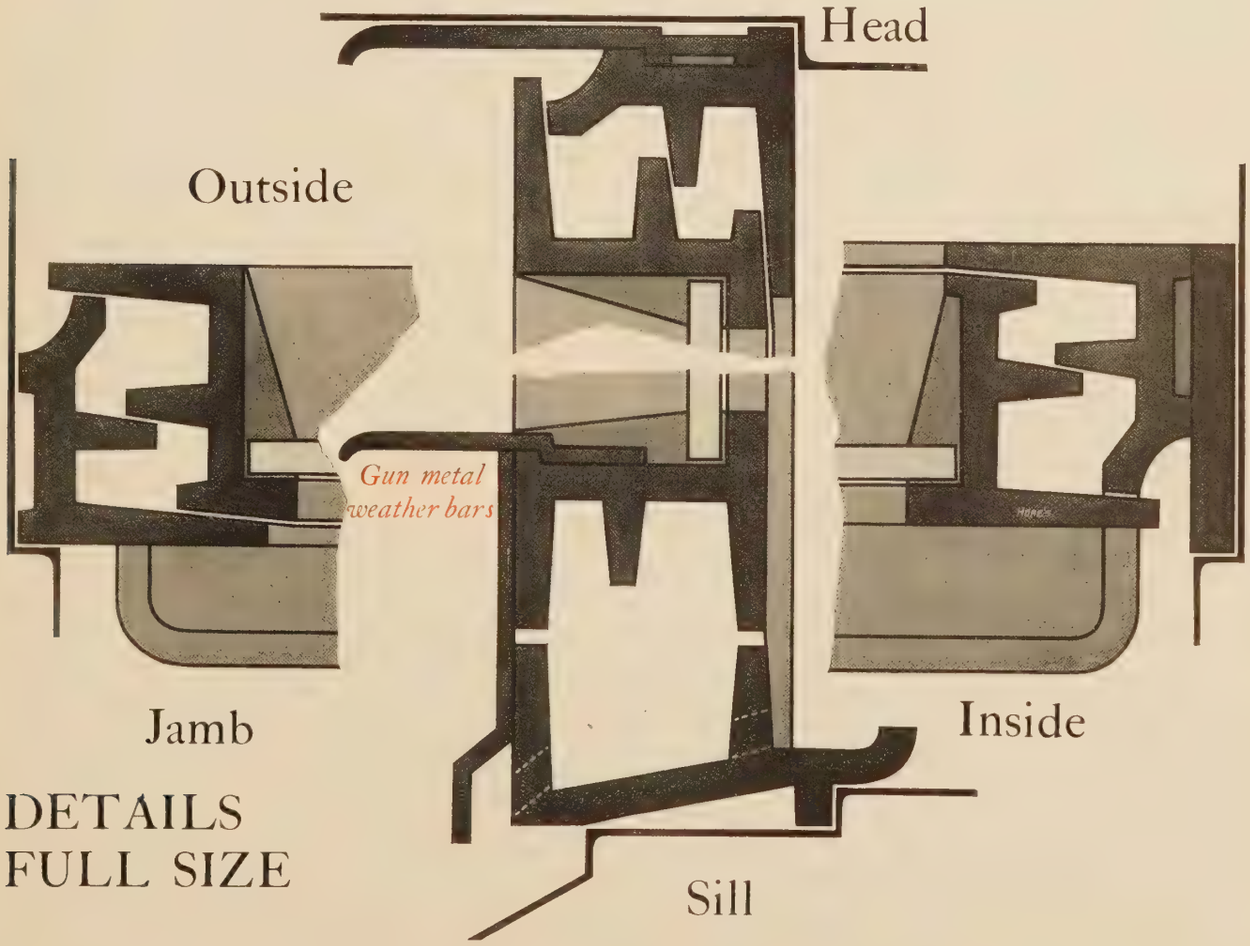
QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

CASEMENTS of all qualities over 5 feet high are fitted with gun metal double grip bolts working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

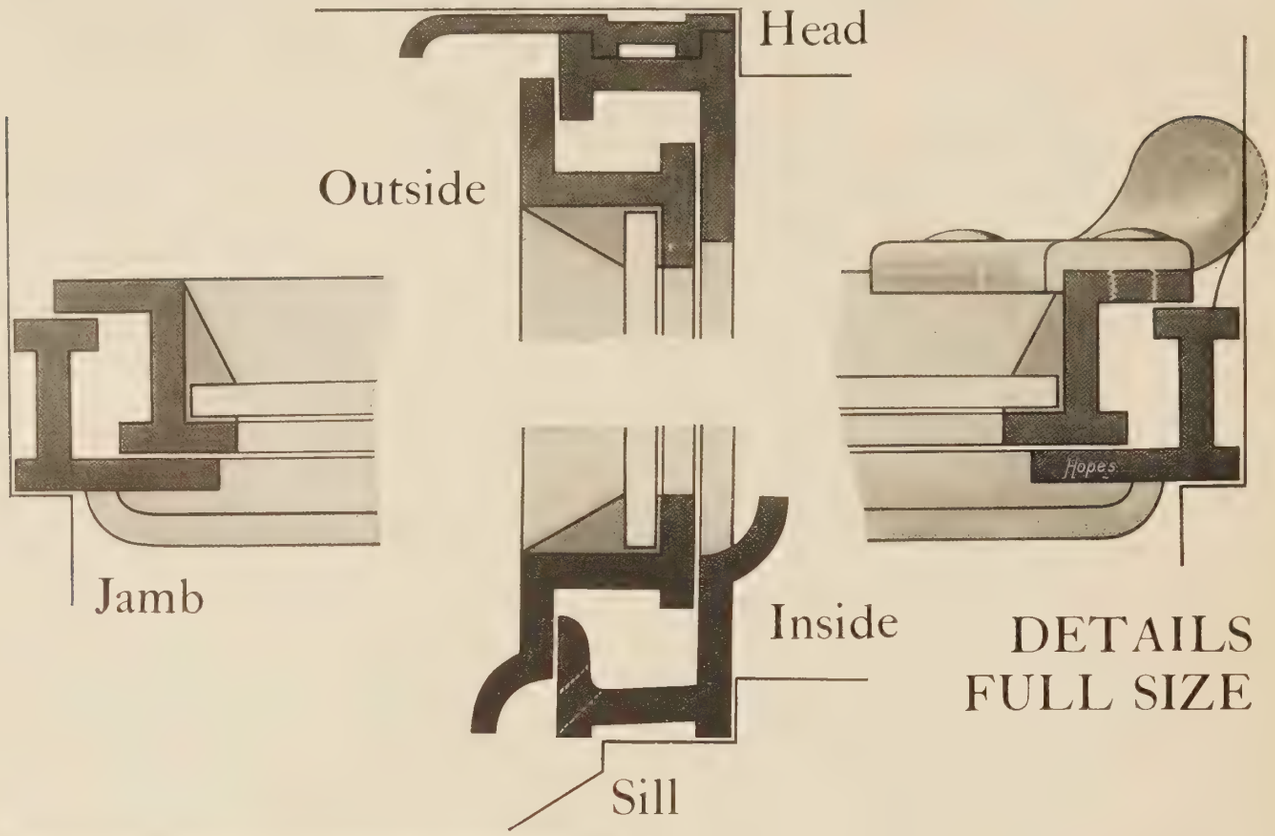
HEIGHT by any width not exceeding 3 feet.	Quality 1.	Quality 2.	Quality 1a.	Fixed Lights to Match	Fillets for Grooves.
Not exceeding 3ft. 6in. :	64/-	60/-	83/-	17/-	4/-
,, ,, 4ft. : :	66/-	62/-	86/-	18/-	4/6
,, ,, 4ft. 6in. :	68/-	64/-	89/-	19/-	5/-
,, ,, 5ft. : :	71/-	67/-	94/-	20/-	5/6
,, ,, 5ft. 6in. :	85/-	81/-	106/-	21/-	6/-
,, ,, 6ft. : :	89/-	85/-	110/-	22/-	6/6
,, ,, 6ft. 6in. :	94/-	90/-	113/-	24/-	7/-
,, ,, 7ft. : :	99/-	95/-	117/-	26/-	7/6

EXTRAS.—Same as for Section 1, *page* 7.



DETAILS
FULL SIZE

SECTION 2
OUTWARD OPENING CASEMENT WITH FRAME



Window frame, with one casement hung at side, quality 1 (left hand), and one casement above transome hung at top, quality 1, fitted with gun metal peg stay. All glazed with leaded lights.

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are mild steel forgings bushed with gun metal and machined with great accuracy.

The fittings of each pattern are interchangeable, and of the best possible materials and workmanship; for full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality, and finish before being despatched.

HOPE'S SECTION 2

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and either gun metal screw and swivel stay or peg stay.

QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

CASEMENTS of all qualities over 4ft. 6in. high are fitted with gun metal double grip bolts, working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet	Quality 1	Quality 2	Quality 1a	Fixed Lights to Match	Fillets for Grooves
Not exceeding 2ft. 6in. :	33/-	29/-	42/-	10/-	2/6
„ „ 3ft. : :	34/-	30/-	43/-	11/-	2/6
„ „ 3ft. 6in. :	35/-	31/-	44/-	12/-	3/-
„ „ 4ft. : :	37/-	33/-	46/-	13/-	3/-
„ „ 4ft. 6in. :	39/-	35/-	49/-	14/-	3/-
„ „ 5ft. : :	48/-	43/-	59/-	15/-	4/-
„ „ 5ft. 6in. :	50/-	45/-	62/-	16/-	4/-

CASEMENTS HUNG AT TOP

For use over transomes of the same section and hung on gun metal hinges to open outwards, any size up to 3ft. high by 2ft. wide.

QUALITY 1. Oiled and painted two coats of white lead, and fitted with screw opener to work with cord, fixed to either side of the casement, or jointed arm stay, or Hope's patent cam opener or gun metal peg stay 32/- each

QUALITY 2. Fitted with iron peg stay - - - - - 29/- „

QUALITY 1a. As described above for casements hung at side - - 40/- „

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 10/- ea. Circular on plan, 10/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 2 feet add 4d. per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

SPECIAL STAY. Hope's No. 223 gun metal swivel stay (no projection inside when open) 3/- each.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, as detail on page 12, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

SECTION 2a
INWARD OPENING CASEMENT WITH FRAME

Window frame, with one casement hung at side, quality 1 *(left hand), and one casement hung at bottom, quality* 1. *Fixed lights to match. All glazed with leaded lights.*

SPECIFICATION

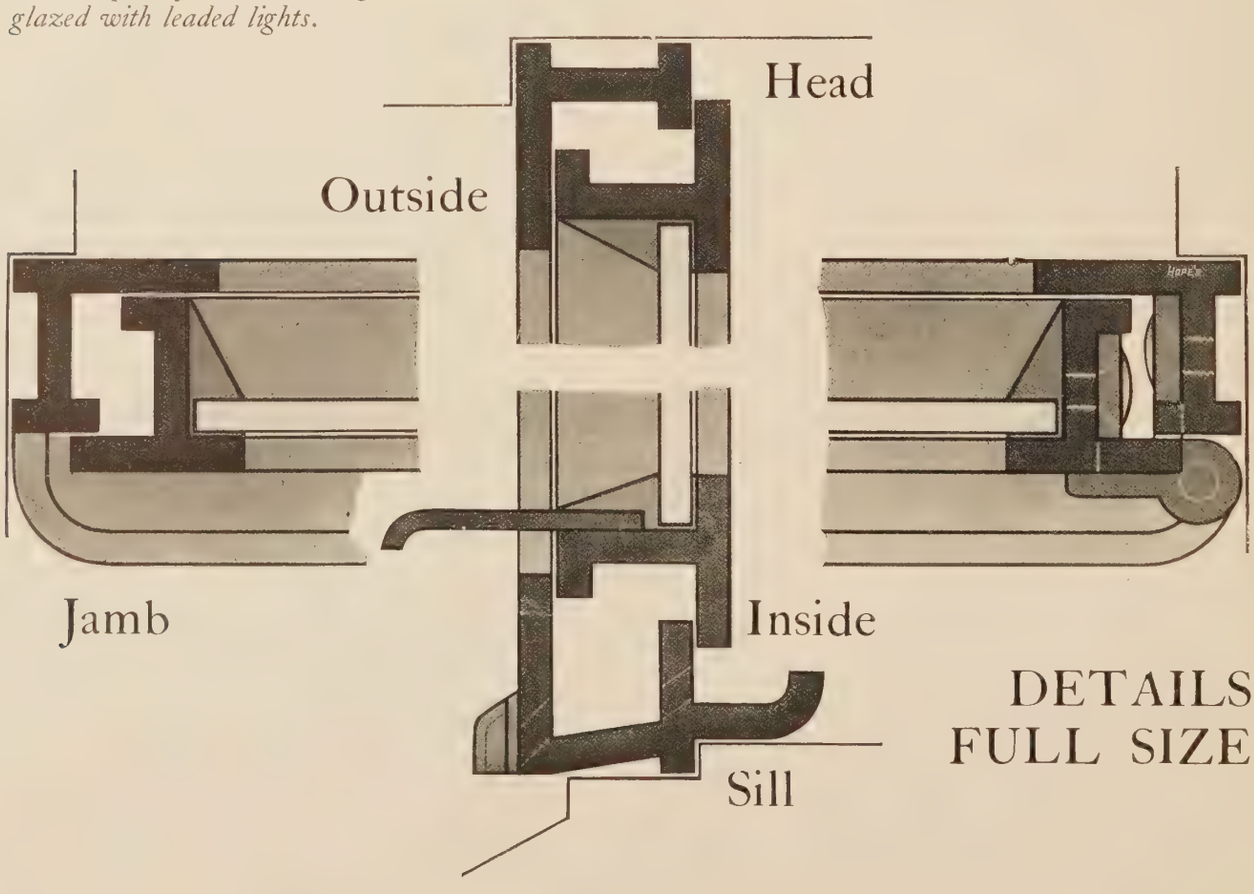
Each section is of mild steel made from rolls turned for our exclusive use. The weather bars are gun metal, and there is an ample condensation channel in the bottom rail.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plates are mild steel forgings accurately machined and welded to the casements. The hinges are gun metal of great strength, and entirely machine made with drawn steel pins.

The fittings of each pattern are interchangeable, and of the best possible materials and workmanship ; for full specification and designs see pages 49 and 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.



DETAILS FULL SIZE

HOPE'S SECTION 2a

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and gun metal swivel stay or revolving cabin hook.

QUALITY 2. Finished and painted as last but fitted with wrought iron handle and iron revolving cabin hook.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

CASEMENTS of all qualities over 4ft. 6in. high are fitted with gun metal double grip bolts working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet	Quality 1	Quality 2	Quality 1a	Fixed Lights to Match	Fillets for Grooves
Not exceeding 2ft. 6in. :	39/-	35/-	49/-	10/-	2/6
„ „ 3ft. : :	40/-	36/-	50/-	11/-	2/6
„ „ 3ft. 6in. :	41/-	37/-	51/-	12/-	3/-
„ „ 4ft. : :	43/-	39/-	54/-	13/-	3/-
„ „ 4ft. 6in. :	45/-	41/-	56/-	14/-	3/-
„ „ 5ft. : :	52/-	48/-	64/-	15/-	4/-
„ „ 5ft. 6in. :	54/-	50/-	67/-	16/-	4/-

CASEMENTS HUNG AT BOTTOM

For use over transomes of the same section and hung on pivots and plates to open inwards, any size up to 3ft. high by 2ft. wide.

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring catch and folding side arms - - - 34/- each.

QUALITY 2. Fitted with gun metal spring catch and iron side arms 32/- „

QUALITY 1a. As described above for casements hung at side - 43/- „

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 10/- ea. Circular on plan 10/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 2ft. add 4d. per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 & 2.

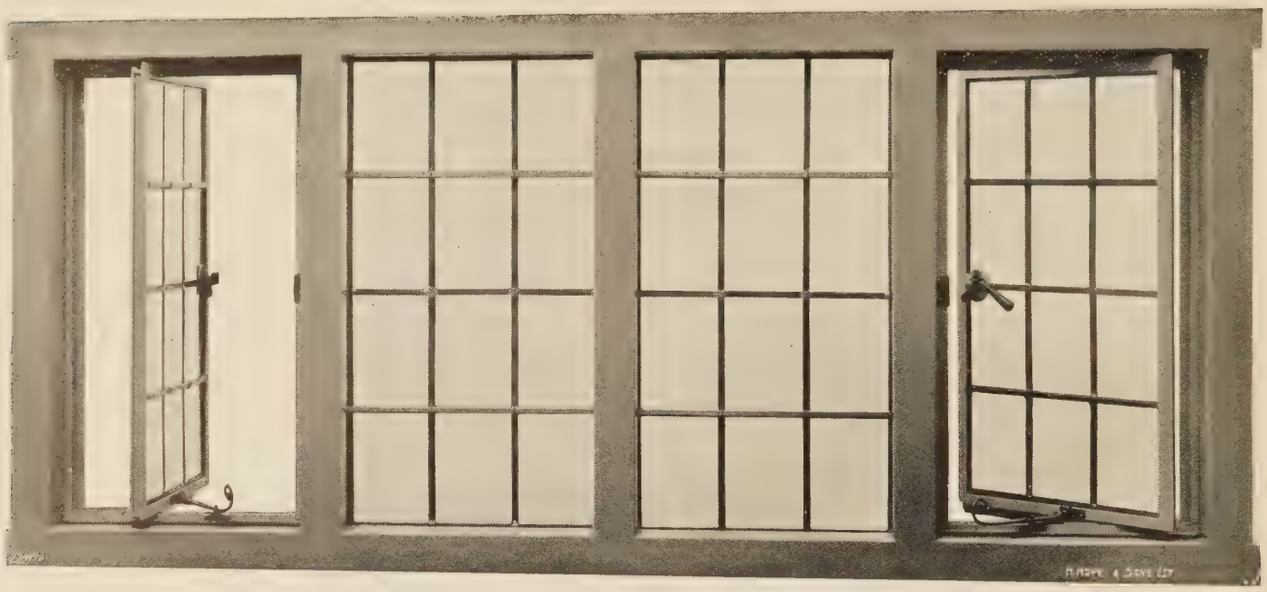
GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

NOTE.—All the list prices are for casements with square heads prepared to fix in inside rebates, as detail on page 14, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S SECTION 2c
CLEANING CASEMENTS



Window Frame with two casements hung on vertical pivots, quality 1, *glazed with leaded lights and two fixed sheets of leaded lights. It will be observed that the outside of the casements and the adjoining fixed lights can all be cleaned from the inside. Ample space is allowed for cleaning without an objectionable projection of the casement inside.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint.*)

The handle plates are mild steel forgings accurately machined and welded to the casements. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship. For full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection before being despatched.

SPECIAL POINTS

The weather bars are gun metal, and there is an ample condensation channel in the sill.

The hinges are gun metal of great strength, and machine made with phosphor bronze pins.

The full section of the casement is maintained throughout, and no portion is cut away.

NOTE.—This is our original pattern of cleaning casement which we introduced in 1898. *While the various reversing "patents" have (as we predicted) proved an utter failure, and have for the most part disappeared, except from the memory of the unfortunate people who were persuaded to use them, Hope's cleaning casements have given universal satisfaction.*

Our claims for SAFETY, ECONOMY and DURABILITY have been amply justified.

Reversing casements with movable parts even when these are in good order are very troublesome in use, and it has been proved conclusively that any movable devices are speedily rendered totally unserviceable with a little wear.

There are no movable parts in Hope's cleaning casement and its merit lies in simplicity and perfect construction. The opening and closing movements are the same as in an ordinary casement and there are no reversing devices which can be left unfastened by a window cleaner.

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, as detail on page 17, *and to receive plate glass in one sheet.*

IMPORTANT.—For instructions as to ordering see pages 80 *&* 81.

HOPE'S SECTION 2c

CLEANING CASEMENTS

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and either gun metal screw and swivel stay or peg stay.

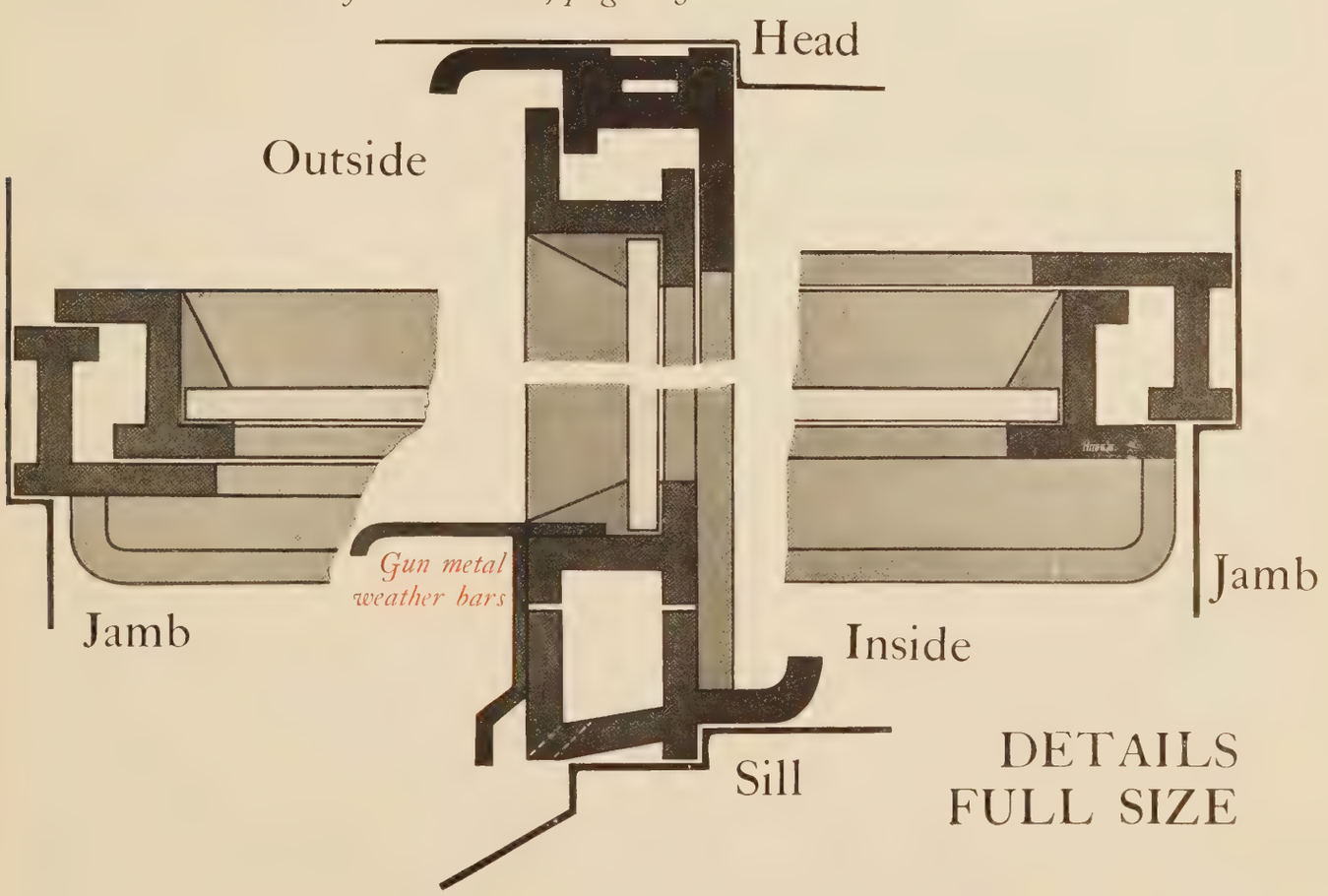
QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

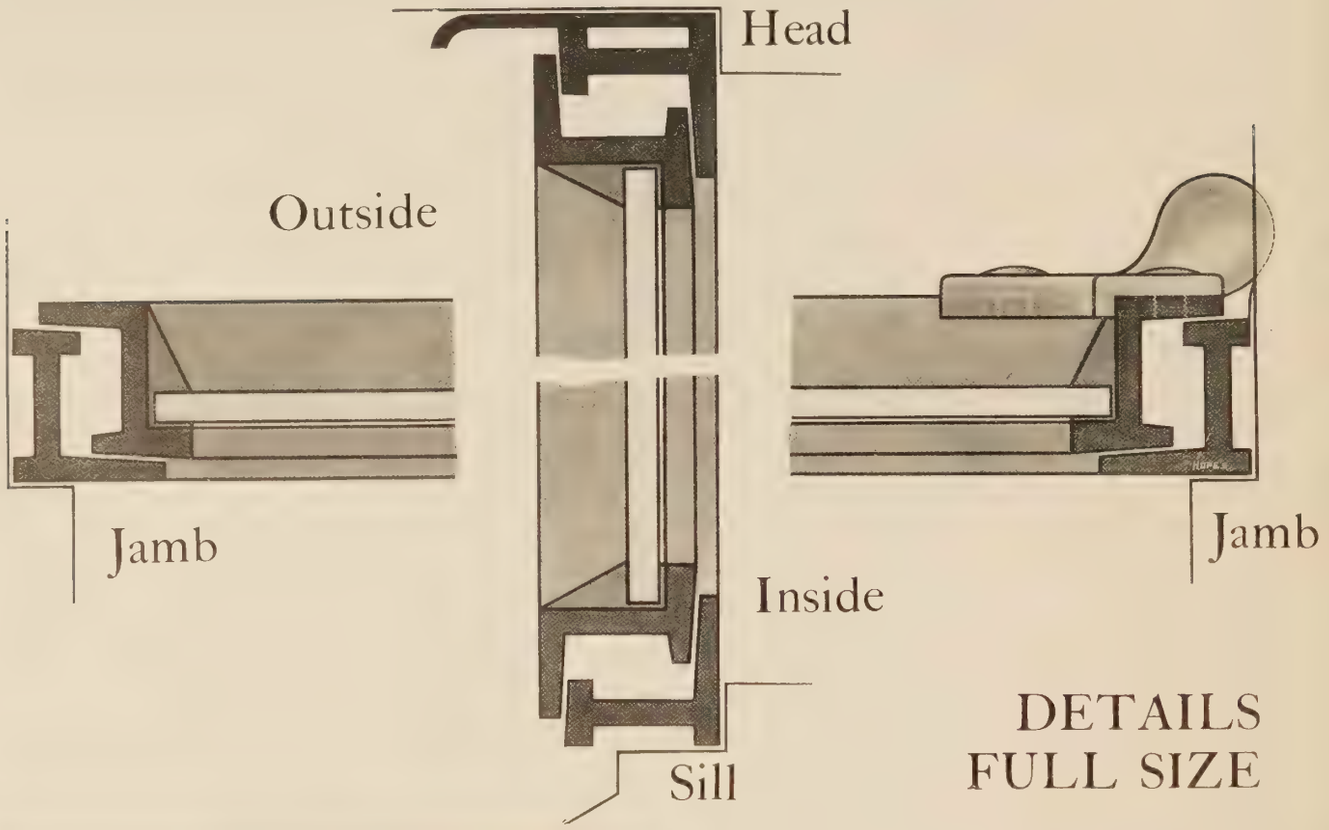
CASEMENTS of all qualities over 4ft. 6in. high are fitted with gun metal double grip bolts working on gun metal plates, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet.	Quality 1.	Quality 2.	Quality 1a.	Fixed Lights to Match	Fillets for Grooves
Not exceeding 2ft. 6in. :	49/-	45/-	59/-	10/-	3/6
„ „ 3ft. : :	50/-	46/-	60/-	11/-	3/6
„ „ 3ft. 6in. :	51/-	47/-	61/-	12/-	4/-
„ „ 4ft. : :	52/-	48/-	63/-	13/-	4/6
„ „ 4ft. 6in. :	54/-	50/-	65/-	14/-	5/-
„ „ 5ft. : :	70/-	66/-	82/-	15/-	5/6
„ „ 5ft. 6in. :	71/-	67/-	84/-	16/-	5/6

EXTRAS.—Same as for Section 2, page 13.



SECTION 3
OUTWARD OPENING CASEMENT WITH FRAME



DETAILS FULL SIZE

Window frame with one casement hung at side, quality 1 *(left hand), and one casement above transome hung at top, quality* 1, *fitted with screw opener. All glazed with leaded lights.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint.*)

The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are mild steel forgings bushed with gun metal and machined with great accuracy.

The fittings of each pattern are interchangeable, and of the best possible materials and workmanship ; for full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

HOPE'S SECTION 3

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle (any one of our smaller patterns) and gun metal peg stay, No. 218.
QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.
QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Fixed Lights to Match	Fillets for Grooves
Not exceeding 2ft. : :	28/-	24/-	34/-	7/6	2/6
,, ,, 2ft. 6in. :	29/-	25/-	35/-	8/-	2/6
,, ,, 3ft. : :	30/-	26/-	36/-	8/6	2/6
,, ,, 3ft. 6in. :	31/-	27/-	37/-	9/-	3/-
,, ,, 4ft. :	33/-	29/-	40/-	10/-	3/-

CASEMENTS HUNG AT TOP

For use over transomes of the same section and hung on gun metal hinges to open outwards, any size up to 2ft. 6in. high by 2ft. wide.
QUALITY 1. Oiled and painted two coats of white lead, and fitted with Hope's patent cam opener or gun metal peg stay - - - 27/- each.
QUALITY 2. Fitted with iron peg stay - - - - 23/- ,,
QUALITY 1a. As described above for casements hung at side - 33/- ,,

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 8/- ea. Circular on plan, 8/- each.
BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.
FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.
SCREW OPENER. To work with cord for casements hung at top, 2/- ea. casement.

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, as detail on page 18, and to receive plate glass in one sheet.
IMPORTANT.—For instructions as to ordering see pages 80 & 81.

SECTION 3a
INWARD OPENING CASEMENT WITH FRAME

Window frame, with one casement hung at side, quality 1 *(left hand), and one casement above transome hung at bottom, quality* 1. *Fixed lights to match. All glazed with leaded lights.*

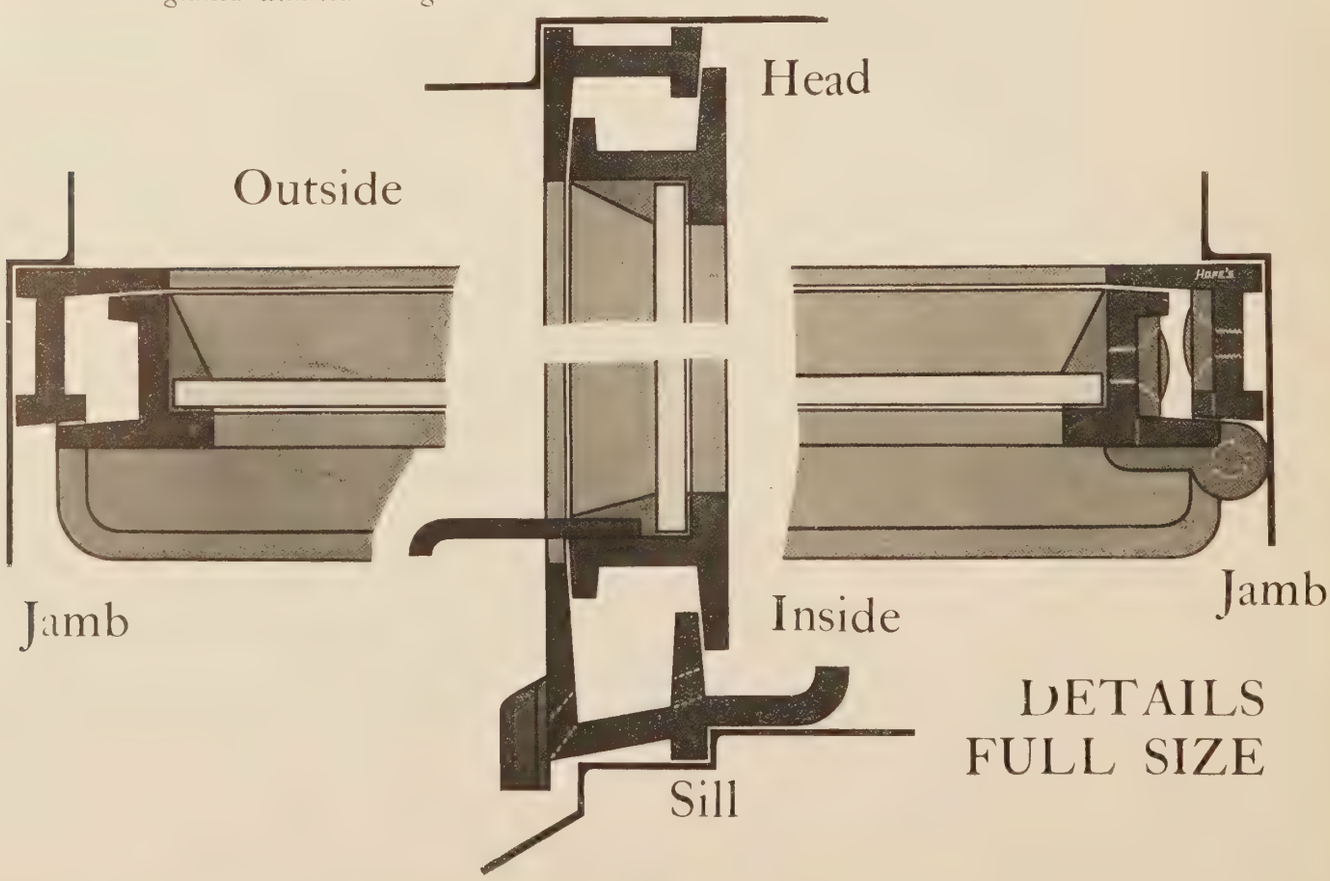
SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use. The weather bars are gun metal, and there is an ample condensation channel in the bottom rail.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plates are mild steel forgings accurately machined and welded to the casements. The hinges are gun metal of great strength, and entirely machine made with drawn steel pins. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship. For full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.



DETAILS FULL SIZE

HOPE'S SECTION 3a

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle (any one of our smaller patterns) and gun metal swivel stay or revolving cabin hook.

QUALITY 2. Finished and painted as last but fitted with wrought iron handle and iron revolving cabin hook.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead and one coat of enamel.

HEIGHT by any width not exceeding 2 feet.	Quality 1.	Quality 2.	Quality 1a.	Fixed Lights to Match	Fillets for Grooves
Not exceeding 2ft. : :	32/-	28/-	40/-	7/6	2/6
,, ,, 2ft. 6in. :	33/-	29/-	41/-	8/-	2/6
,, ,, 3ft. : :	34/-	30/-	42/-	8/6	2/6
,, ,, 3ft. 6in. :	35/-	31/-	43/-	9/-	3/-
,, ,, 4ft. : :	37/-	33/-	46/-	10/-	3/-

CASEMENTS HUNG AT BOTTOM

For use over transomes of the same section and hung on pivots and plates to open inwards, any size up to 2ft. 6in. high by 2ft. wide.

QUALITY 1. Oiled and painted, two coats of white lead and fitted with gun metal spring catch and folding side arms - - 28/- each.

QUALITY 2. Fitted with gun metal spring catch and iron side arms 26/- ,,

QUALITY 1a. As described above, for casements hung at side - 34/- ,,

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 8/- ea. Circular on plan, 8/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent to the prices of qualities 1 and 2.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

NOTE.—All the list prices are for casements with square heads prepared to fix in inside rebates, as detail on page 20, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S SECTION 4
SHEWING CASEMENTS CLOSED

No. 4. Swing
No. 4a Hung at bottom
No. 4 Hung at top
No. 4c "Cleaning" Casement
No. 4a Hung at side to open inwards
No. 4 Hung at side to open outwards

This is a new series of sections which can be used for every form of opening casement, whether hung at side, at top, or at bottom; whether to open outwards or inwards, or to swing on pivots either vertically or horizontally. In any of these forms this section can be fixed in an ordinary $^{3}/_{8}$ in. rebate without cutting or lining up of the frames, while the sight line is always the same and the glass is in the same plane.

It is often necessary to put the details for the construction of window frames in hand before the number of opening casements has been decided upon, and before their positions and the manner in which they should be made to open have been settled.

Architects can now decide upon a uniform detail for the whole of the mullions, jambs, sills, etc., with the knowledge that in specifying Hope's Section 4 they may at their own leisure and convenience, select any method of opening and may vary this for different positions if desirable.

HOPE'S SECTION 4
SHEWING CASEMENTS OPEN

SECTION 4. Shews the section adapted for casements hung at side or at top to open OUTWARDS.

SECTION 4a. Shews the section adapted for casements hung at side or at bottom to open INWARDS.

SECTION 4c. Shews the section adapted for a cleaning casement hung on vertical pivots.

SECTION 4, Swing. Shews an ordinary swinging casement for use above transome.

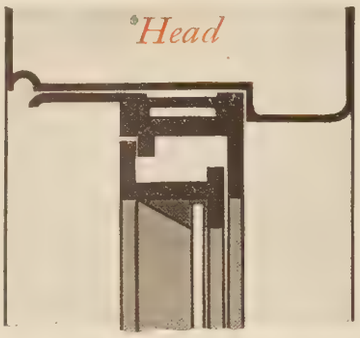
For details see pages 24 & 25. For prices see pages 26 & 27.

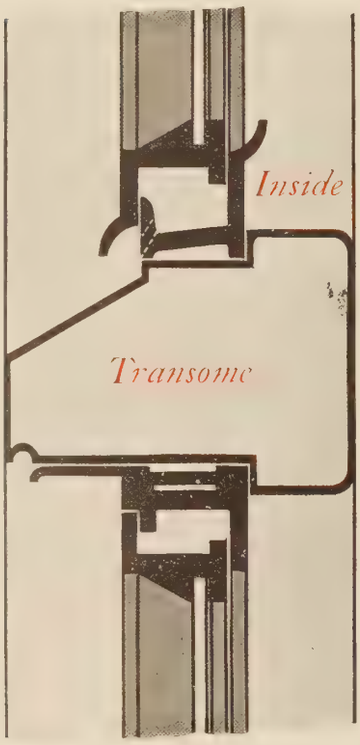
SECTION 4

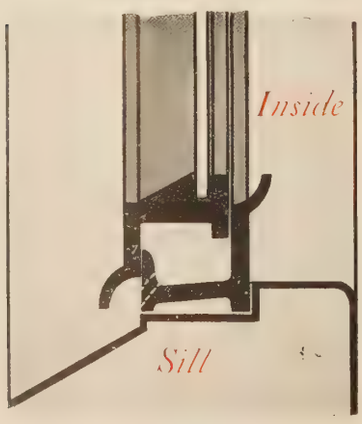
Casement hung at top above transome and
Casement hung at side below transome.
Both opening OUTWARDS

SECTION 4a

Casement hung at bottom above transome and
Casement hung at side below transome.
Both opening INWARDS

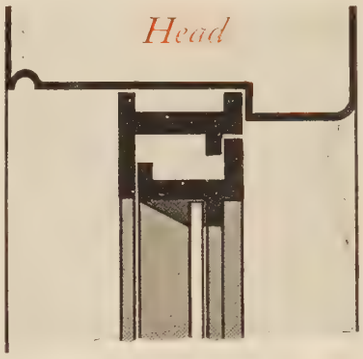


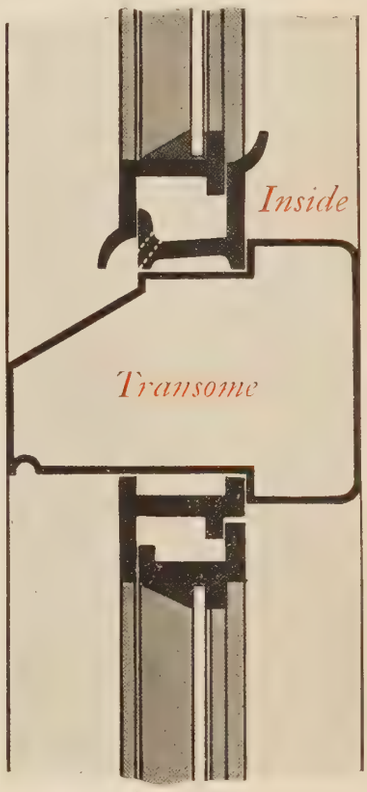


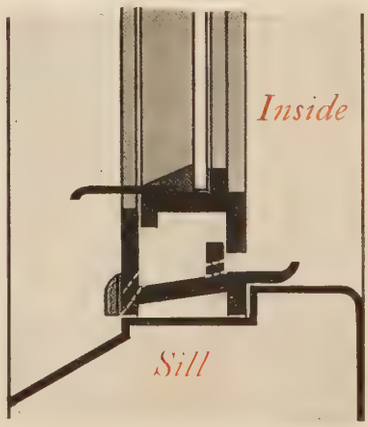


DETAILS
Half full size

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·







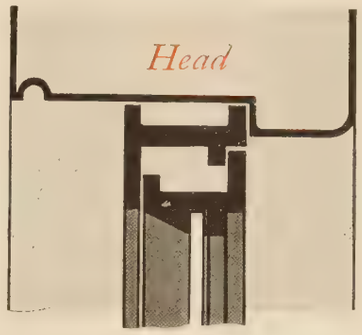
HOPE'S SECTION 4c

Swinging Casement (Section 4 swing) above transome. Casement hung on vertical pivots for cleaning below transome.

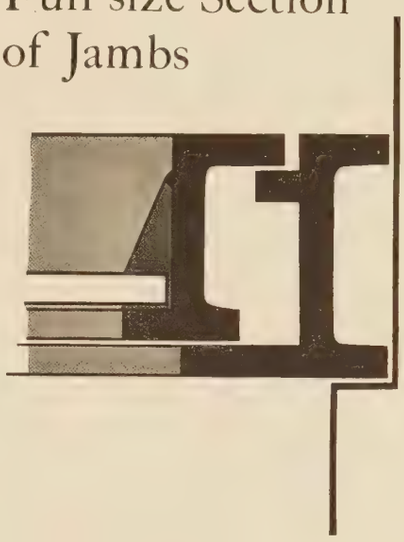
DETAILS

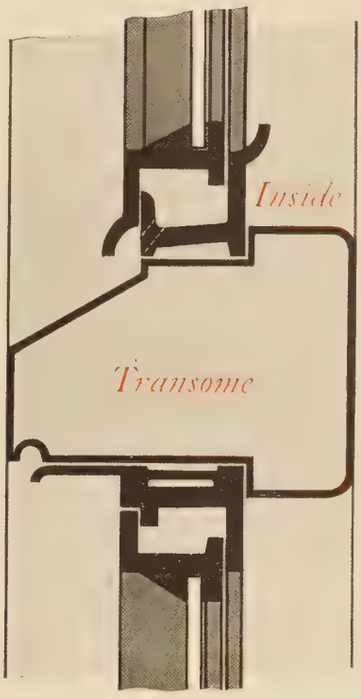
Half full size

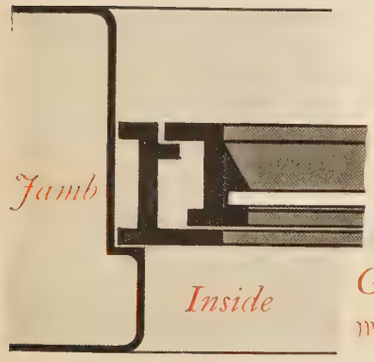
TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

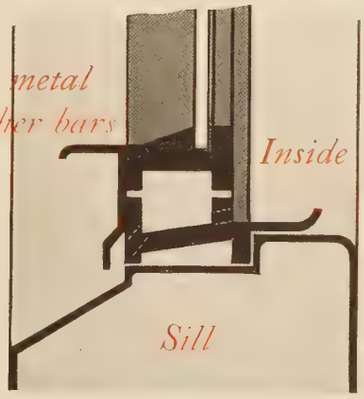


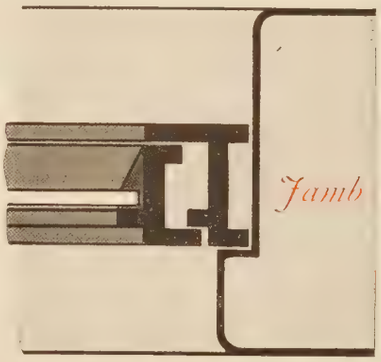
Full size Section of Jambs











NOTE: The mullions, etc., may be of stone, terra cotta, brick, or wood as desired and the preparation in all cases is the same—a plain $^{3}/_{8}$ in. outside rebate as shewn on these details. The rebates may be on the inside if necessary but an outside rebate is strongly recommended, and in *all cases the rebate to the sill should be outside.*

N.B.—Details for inside rebates should be sent to Hope's for approval before being put in hand.

HOPE'S SECTION 4
SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.
All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sand-blasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).
The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are mild steel forgings bushed with gun metal and machined with great accuracy. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship; for full specification and designs see pages 49 to 60.
Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

SECTION 4 (to open outwards)
CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted, two coats of white lead and fitted with gun metal handle and either gun metal screw and swivel stay or peg stay.
QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.
QUALITY 1a. The same fittings as quality 1, the sill of the outer frame made of solid gun metal and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted, two coats of white lead and one coat of enamel.
Casements of all qualities over 4ft. 6in. high are fitted with gun metal double grip bolts, gripping the casement at top and bottom with one motion of the handle.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Prices of Fixed Lights to match Casements
Not exceeding 3ft. : :	39/-	35/-	49/-	14/-
,, ,, 3ft. 6in. :	40/-	36/-	50/-	15/-
,, ,, 4ft. : :	42/-	38/-	52/-	16/-
,, ,, 4ft. 6in. :	44/-	40/-	54/-	18/-
,, ,, 5ft. : :	54/-	49/-	64/-	20/-
,, ,, 5ft. 6in. :	56/-	51/-	66/-	22/-

CASEMENTS HUNG AT TOP

For use over transomes of the same section and hung on gun metal hinges to open outwards, any size up to 3ft. high by 2ft. wide.
QUALITY 1. Fitted with gun metal screw opener to work with cord, or jointed arm stay or Hope's patent cam opener or gun metal peg stay 35/- each.
QUALITY 2. With iron peg stay - - - - - 31/- ,,
QUALITY 1a. The same as described above for casements hung at side 44/- ,,

NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

SECTION 4a (to open inwards)

CASEMENTS HUNG AT SIDE

The specification of the three qualities is the same as for section 4 given on the opposite page, with the necessary difference in the style of the fittings to suit casements opening inwards.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Prices of Fixed Lights to match Casements
Not exceeding 3ft. : :	45/-	41/-	55/-	14/-
,, ,, 3ft. 6in. :	46/-	42/-	56/-	15/-
,, ,, 4ft. : :	48/-	44/-	58/-	16/-
,, ,, 4ft. 6in. :	50/-	46/-	60/-	18/-
,, ,, 5ft. : :	60/-	56/-	70/-	20/-
,, ,, 5ft. 6in. :	62/-	58/-	72/-	22/-

CASEMENTS HUNG AT BOTTOM

For use over transomes of the same section and hung on pivots and plates to open inwards, any size not exceeding 3ft. high by 2ft. wide.

QUALITY 1. Oiled and painted two coats of white lead and fitted with gun metal spring catch and folding side arms - - - 41/- each.

QUALITY 2. As last but with iron side arms - - - 37/- ,,

QUALITY 1a. The same as described for casements hung at side - 50/- ,,

SECTION 4c

CLEANING CASEMENTS

Hung on vertical pivots to allow of cleaning the outside of the casement from the inside. For specification and description of qualities see section 4 on opposite page.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Prices of Fixed Lights to match Casements
Not exceeding 3ft. : :	54/-	50/-	64/-	14/-
,, ,, 3ft. 6in :	55/-	51/-	65/-	15/-
,, ,, 4ft. : :	57/-	53/-	67/-	16/-
,, ,, 4ft. 6in :	59/-	55/-	69/-	18/-
,, ,, 5ft. : :	69/-	65/-	79/-	20/-
,, ,, 5ft 6in. :	71/-	67/-	81/-	22/-

SWINGING CASEMENTS (Section 4 swing)

Any size up to 3ft. high fitted with gun metal spring catch, cord & pulley 34/- ea.

QUALITY 1a - - - - - - - - - 44/- ,,

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 12/- each. Circular on plan, 12/- each.

BARS. Casements divided into panes with rebated bars, 9d. per pane. Saddle bars for leaded lights 10d. each bar.

EXTRA WIDTHS. For widths over 2ft. add 6d. per inch.

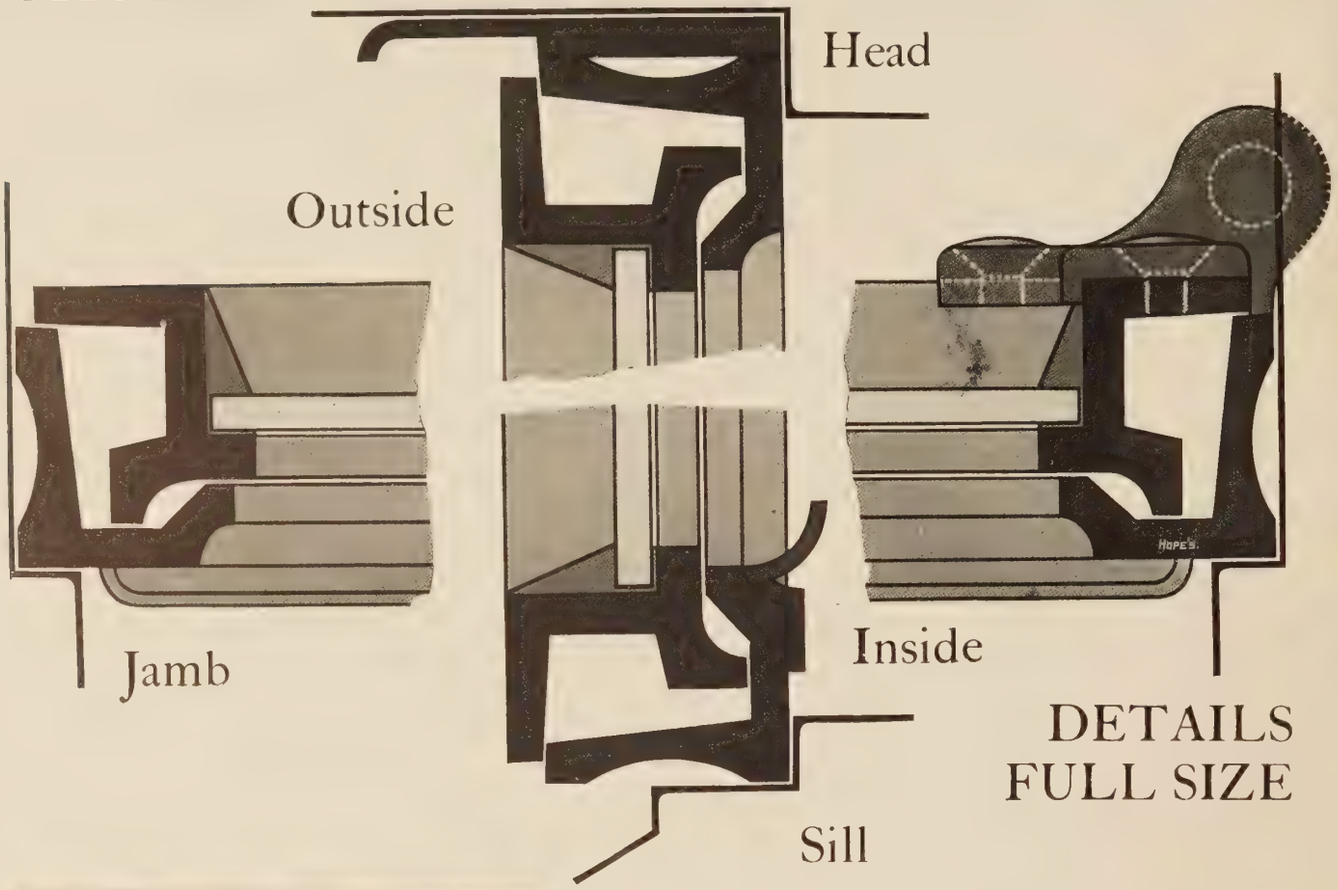
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

HOPE'S SECTION 5

OUTWARD OPENING CASEMENT WITH MOULDED FRAME



DETAILS FULL SIZE

Casement and frame, quality 1, *divided into* 6 *panes, with* 1¼*-in. moulded and rebated bars*

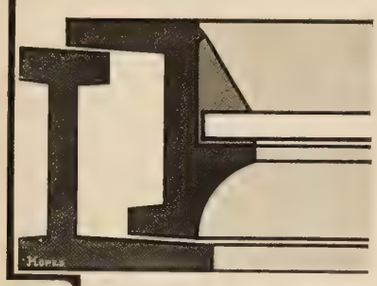
NOTE.—This section is made to open outwards only, either hinged at side or at top. It is very strong and suitable for casements of large size, while the moulding on the inside meets the requirements of those who prefer this form to the usual square edge of a metal casement.

Specification, details, prices and extras same as for section 1, pages 6 and 7.

TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM·

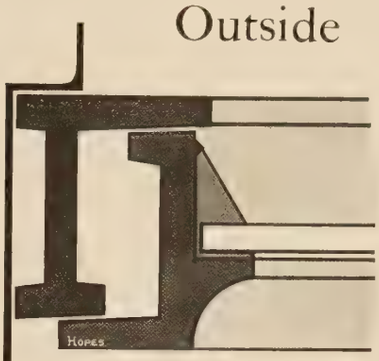
HOPE'S SECTION 6
WITH MOULDED CASEMENT

Outside



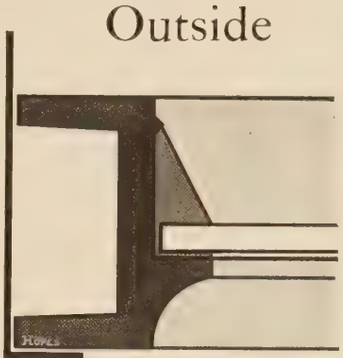
SECTION 6
to open outwards

Outside



SECTION 6a
to open inwards

Outside



Fixed light

DETAILS FULL SIZE

Window Frame with one casement Section 6, *quality* 1, *one casement Section* 6a, *quality* 1, *and one fixed light, all with moulding on the inside, each divided into six panes with moulded and rebated bars.*

Specification, details, prices and extras for section 6 same as for section 2, pages 12 and 13.

For section 6a, same as for section 2a, pages 14 and 15.

NOTE.—These sections are specially suitable for casements divided into small panes with moulded sash bars; the moulding on the bars mitres perfectly with the moulding on the casement. *The moulding may be outside* and the glass put in from the inside if preferred.

FRENCH CASEMENTS
& FRAMES OPENING OUTWARDS

Window frame with one French casement with mullion and one without mullion, both of section 1, *quality* 1, *over* 4*ft.* 6*in. high, divided into panes with rebated* ⊥ *bars and glazed with sheet glass.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are mild steel forgings bushed with gun metal and machined with great accuracy. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship; for full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

NOTE.—For detail drawings of sections 1 & 2 see pages 6 & 12. The swivel stays for French casements are of our No. 223 pattern. This pattern has no projection inside when open and it holds the casement firmly at any angle. Where casements are used as doors this stay is essential, as it gives no obstruction when the casement is open.

HOPE'S FRENCH CASEMENTS

SECTION 1 (With or without Mullion)

QUALITY 1. Oiled and painted, two coats of white lead and fitted with gun metal handle and gun metal double grip bolts working on gun metal plates (if with mullion) or gun metal espagnolette bolt (if without mullion) and gun metal swivel stays of our special pattern No. 223.

QUALITY 2. Finished and painted as last, fitted with bolts and stays as last described but partly made of iron.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead and one coat of enamel.

CASEMENTS of all qualities under 4ft. 6in. high are fitted with plain lever handles instead of the long bolts.

HEIGHT by any width not exceeding 4 feet.	Quality 1	Quality 2	Quality 1a	For transome casement hung at top and fitted with Hope's patent cam opener, size not exceeding 2ft. 6in. high by 4ft. wide and screwed on the top of any French casement
Not exceeding 4ft. : :	98/-	91/-	120/-	
„ „ 4ft. 6in. :	102/-	95/-	124/-	
„ „ 5ft. : :	130/-	123/-	154/-	
„ „ 5ft. 6in. :	136/-	129/-	160/-	
„ „ 6ft. : :	142/-	135/-	166/-	
„ „ 6ft. 6in. :	150/-	143/-	176/-	55/- ea.
„ „ 7ft. : :	160/-	153/-	188/-	Quality 1a 68/- „

SECTION 2 (With or without Mullion)

Not exceeding 3ft. 6in. :	75/-	68/-	93/-	
„ „ 4ft. : :	79/-	72/-	97/-	Transome casement as above
„ „ 4ft. 6in. :	83/-	76/-	101/-	
„ „ 5ft. : :	105/-	98/-	123/-	43/- ea.
„ „ 5ft. 6in. :	109/-	102/-	127/-	Quality 1a 53/- „

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 24/- ea. Circular on plan, 24/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 4ft. add 1/- per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

NOTE.—All the list prices are for casements with square heads prepared for fixing in outside rebates and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

FRENCH CASEMENTS
& FRAMES OPENING INWARDS

Window frame with one French casement with mullion, and one without mullion, both of section 1a *quality* 1, *over* 4*ft.* 6*in. high, divided into panes with rebated* ⊥ *bars and glazed with sheet glass.*

SPECIFICATION

Each section is of mild steel made from rolls turned for our exclusive use. The weather bars are gun metal, and there is an ample condensation channel in the bottom rail.

All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).

The handle plates are mild steel forgings accurately machined and welded to the casements. The hinges are gun metal of great strength, and entirely machine made with phosphor bronze pins. The fittings of each pattern are interchangeable, and of the best possible materials and workmanship. For full specification and designs see pages 49 to 60.

Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

NOTE.—For detail drawings of sections 1a and 2a see pages 8 and 14.

HOPE'S FRENCH CASEMENTS

SECTION 1a (With or without Mullion)

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal handle and gun metal double grip bolts working on gun metal plates (if with mullion) or gun metal espagnolette bolt (if without mullion) and gun metal swivel stays.

QUALITY 2. Finished and painted as last but fitted with bolts and stays as last described but partly made of iron.

QUALITY 1a. The same fittings as quality 1. The sill of the outer frame made of solid gun metal, and all the surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

CASEMENTS of all qualities under 4ft. 6in. high are fitted with plain lever handles instead of the long bolts.

HEIGHT by any width not exceeding 4 feet	Quality 1	Quality 2	Quality 1a	For transome casement hung at bottom to open inwards and fitted with spring catch and side arms, not exceeding 2 ft. 6 in. high × 4 ft. wide and screwed on to the top of French casement, 55/- ea. Quality 1a 68/- „
Not exceeding 4ft. : :	110/-	103/-	132/-	
„ „ 4ft. 6in. :	114/-	107/-	136/-	
„ „ 5ft. : :	142/-	135/-	166/-	
„ „ 5ft. 6in. :	148/-	141/-	172/-	
„ „ 6ft. : :	154/-	147/-	178/-	
„ „ 6ft. 6in. :	162/-	155/-	188/-	
„ „ 7ft. : :	172/-	165/-	200/-	

SECTION 2a (With or without Mullion)

Not exceeding 3ft. 6in. :	85/-	78/-	103/-	Transome casement as above, 43/- ea. Quality 1a, 53/- „
„ „ 4ft. : :	89/-	82/-	107/-	
„ „ 4ft. 6in. :	93/-	86/-	111/-	
„ „ 5ft. : :	115/-	108/-	133/-	
„ „ 5ft. 6in. :	119/-	112/-	137/-	

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 24/- ea. Circular on plan 24/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 4ft. add 1/- per inch.

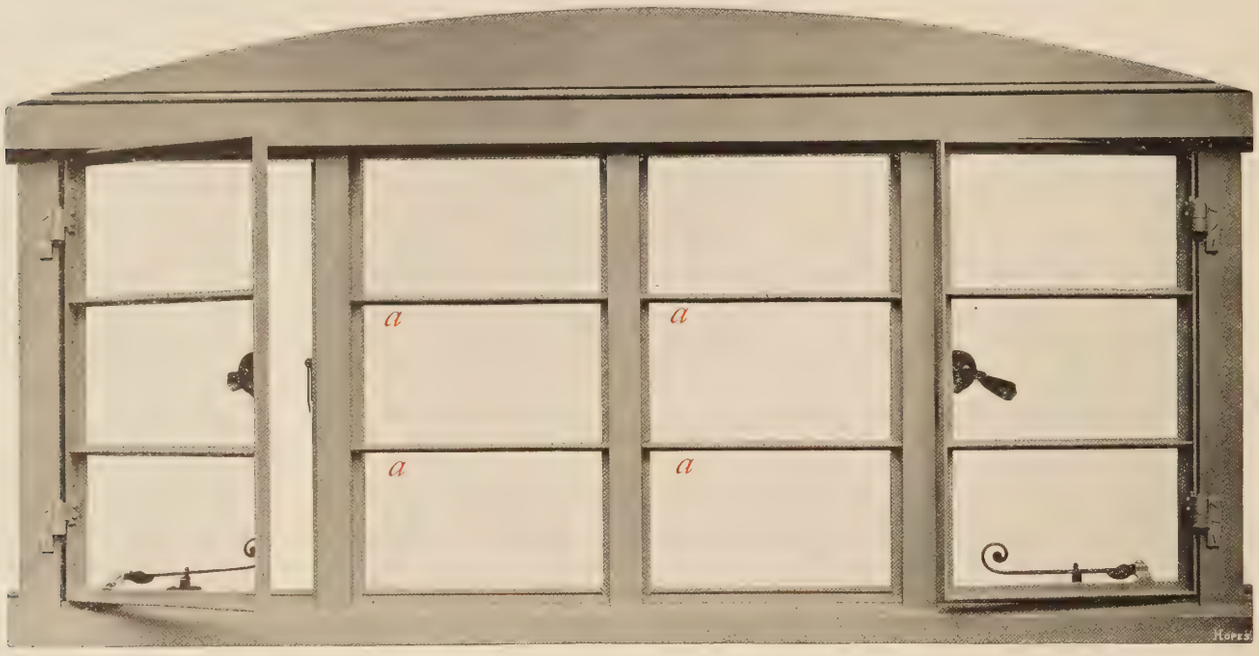
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large casements glazed with plate glass), 4d. per lineal foot of fillet.

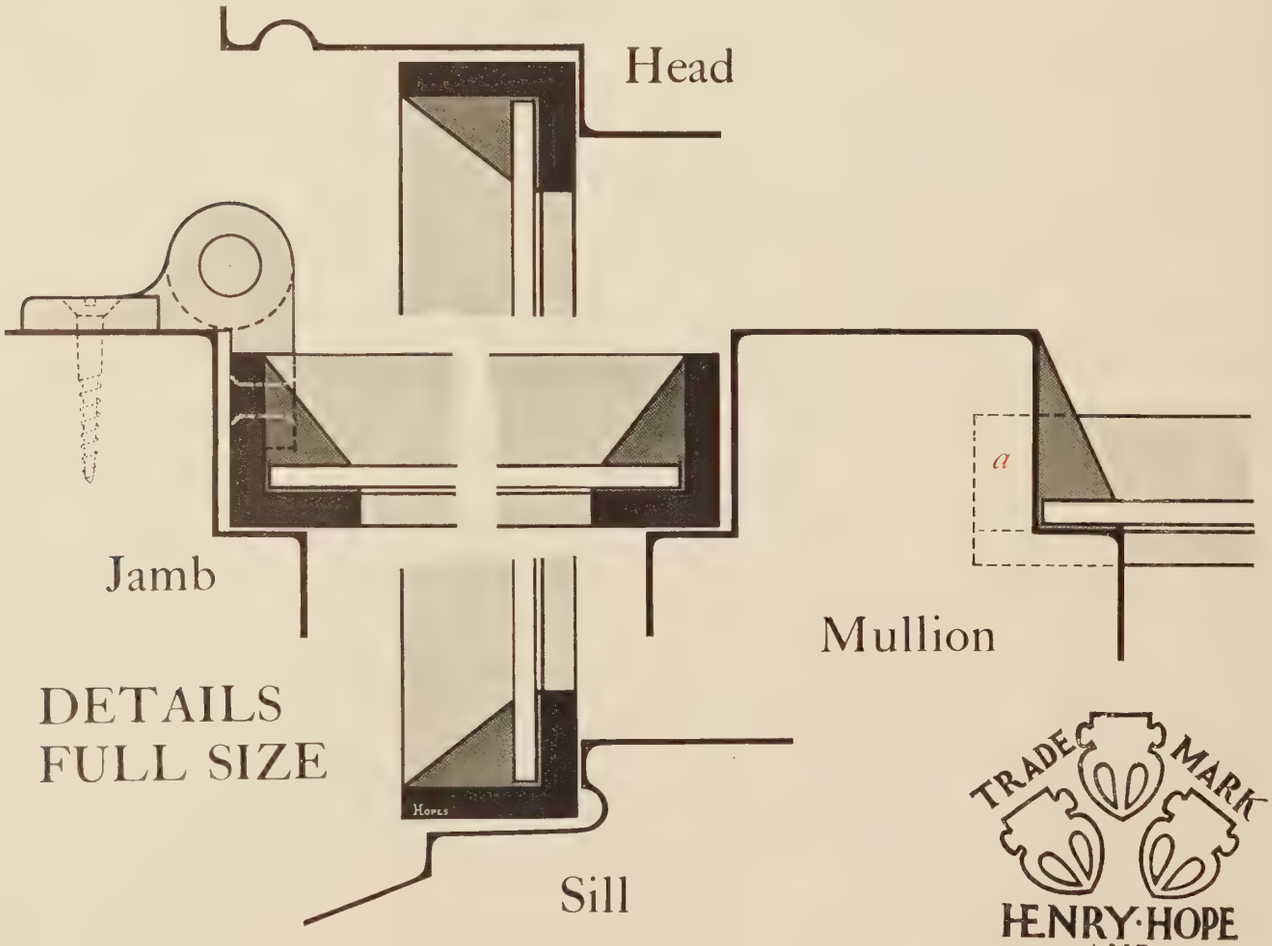
NOTE.—All the list prices are for casements with square heads prepared for fixing in inside rebates and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

"GARDEN CITY" CASEMENT
HOPE'S SECTION 8



Outside view of Window Frame with two casements, each with two ⊥ cross bars and the fixed openings with ⊥ cross bars housed into the mullions and all glazed with sheet glass.



DETAILS
FULL SIZE

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM

NOTE.—The ⊥ cross bars (A) should be housed into the fixed openings before the wood frames are wedged up.

HOPE'S SECTION 8

SPECIFICATION

The section is of rolled steel and all the corners are welded. The hinges are of the hook and band pattern, and the fittings are of iron, all of substantial manufacture and all specially treated to render them rust proof.

FITTINGS. Iron handle (Nos. 497, 575, 577 or 963) and iron stay (Nos. 218 or 219) and small cabin hook.

FINISH. Oiled and painted, two coats of white lead.

CASEMENTS HUNG AT SIDE

Not exceeding 3ft. high - - - - 12/- each.
" " 4ft. " - - - - 13/6 "

CASEMENTS HUNG AT TOP

Fitted with peg stay only and not exceeding 2ft. 6in. high - - - - - - 10/6 each.

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 4/- ea. Circular on plan, 4/- ea.

BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 8d. ea. bar. Rebated cross bars, 10d. ea. bar.
Rebated cross bars for housing into wood frames. 4d. each bar.

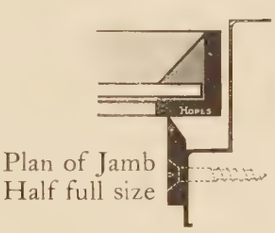
EXTRA WIDTHS. For widths over 2ft. add 2d. per inch.

GUN METAL FITTINGS. If gun metal handles and stays are supplied instead of iron as specification, 3/- each casement.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices.

BEVELLED SLIPS. As detail, 3/- each casement.

NOTE.—The rebate in wood frames must be 1½ in. × ½ in. when slips are used.



Plan of Jamb
Half full size

An English casement window is generally admitted to be the most suitable form of window for garden city buildings, but hitherto many people have been deterred from using *metal* casements on account of the cost.

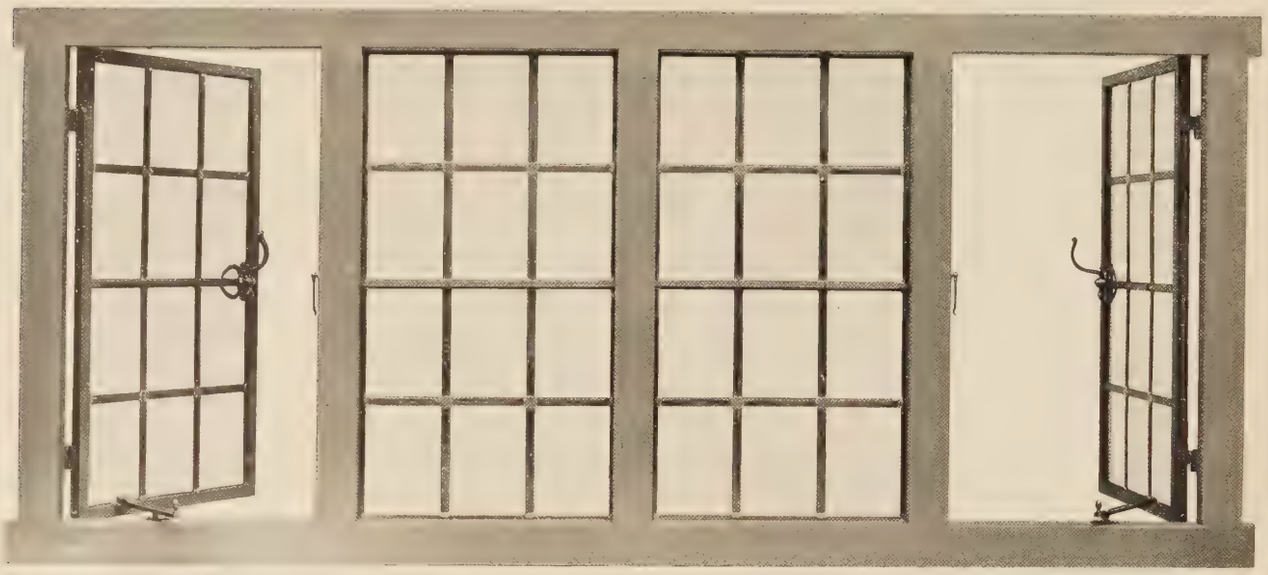
Hope's "Garden City" Casement has been produced at a price that places it on equal terms with a wood casement, and it should be noted that the prices include the hinges and handles and stays, and that all of these are of substantial design and first class manufacture.

Any carpenter can make the frame, which is rebated the same for casements as for fixed sheets of glass, and when fitted with ⊥ cross bars (as on the photograph) and glazed with sheet glass will be found to give a very pleasing appearance and at the same time to be extremely economical.

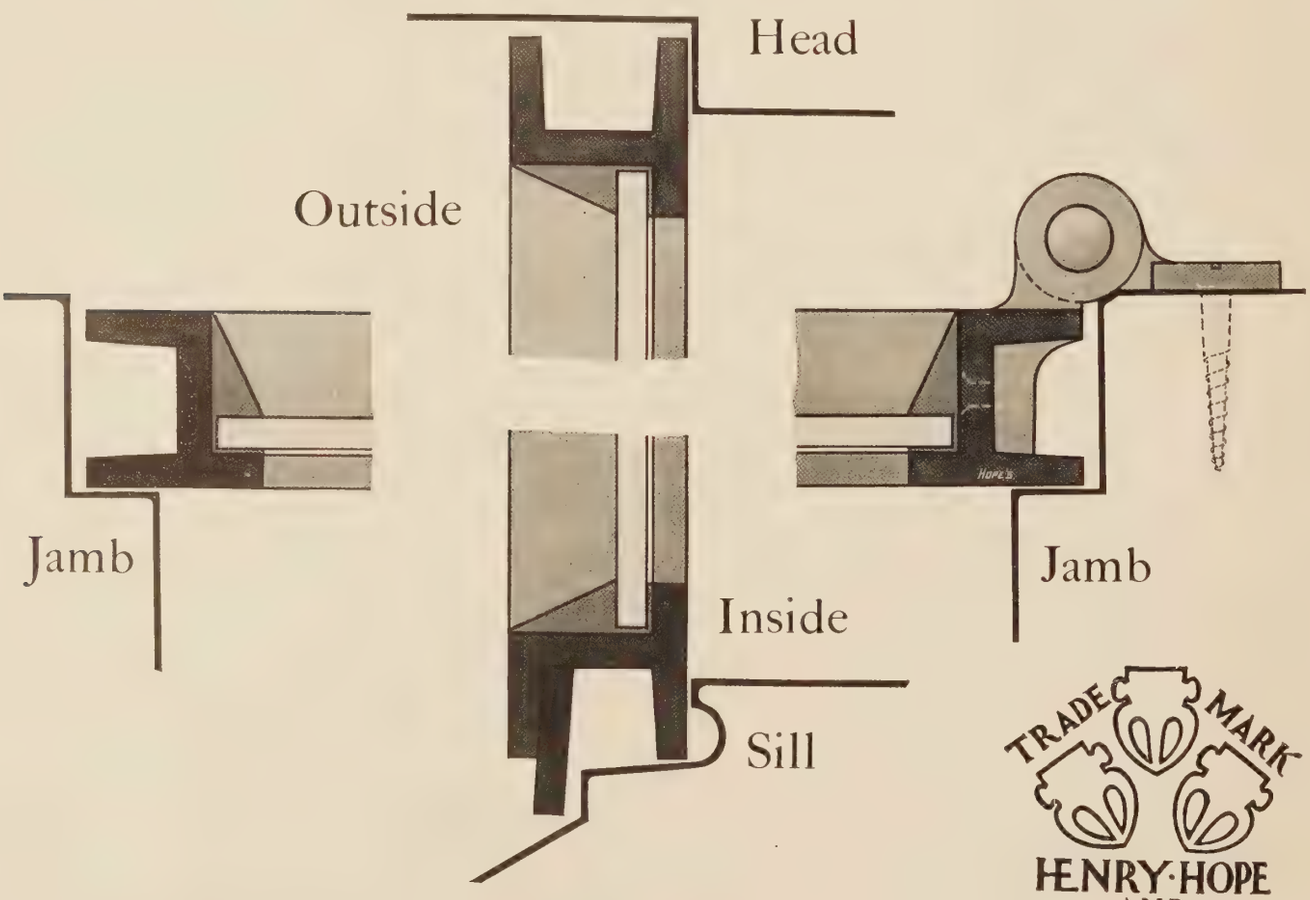
NOTE.—All the list prices are for casements with square heads prepared to hang in outside rebates and to receive one sheet of glass in each.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S SECTION 9
OUTWARD OPENING CASEMENT WITHOUT FRAME



Window Frame with two casements of section 9, quality 1, glazed with leaded lights with $\frac{3}{8}$" cames; the two fixed sheets in the middle have the leaded lights glazed direct into the rebates in the wood frame.



DETAILS FULL SIZE

TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM·

NOTE.—All the list prices are for casements with square heads prepared to hang in outside rebates, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S SECTION 9

SPECIFICATION

The section is of mild steel made from rolls turned for our exclusive use.
All joints are cut on milling machines of great precision, and no operation which can be performed mechanically is left to the chance of bad workmanship by hand labour. Every joint after machining is rivetted, brazed and sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).
The handle plate and stay jaw are mild steel forgings accurately machined and welded to the casements. The hinges are of the hook and band pattern bushed with gun metal.
The fittings of each pattern are interchangeable, and of the best possible materials and workmanship. For full specification and designs see pages 49 to 60.
Finally the finished casements are subjected to a rigid inspection as to size, quality and finish before being despatched.

CASEMENTS HUNG AT SIDE

QUALITY 1. Oiled and painted, two coats of white lead and fitted with gun metal handle and gun metal peg stay.
QUALITY 2. Finished and painted as last but fitted with wrought iron handle and peg stay.
QUALITY 1a. The same fittings as quality 1, and all the surfaces of the steel ground and finished smooth, oiled and painted, two coats of white lead and one coat of enamel.

HEIGHT by any width not exceeding 2 feet.	Quality 1.	Quality 2.	Quality 1a.	Bevelled slips as detail below, add	
				Qualities 1 & 2	Quality 1a
Not exceeding 3ft. : :	22/-	19/-	25/-	3/-	4/-
„ „ 3ft. 6in. :	23/-	20/-	26/-	3/6	4/6
„ „ 4ft. : :	24/6	21/6	27/6	4/-	5/-
„ „ 4ft. 6in. :	26/-	23/-	29/-	4/6	5/6

CASEMENTS HUNG AT TOP

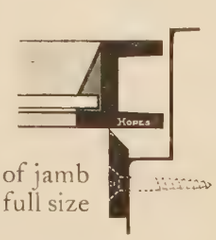
For use over transomes of the same section and hung on hook and band hinges to open outwards, any size up to 3ft. high by 2ft. wide.
QUALITY 1. Oiled and painted, two coats of white lead and fitted with gun metal peg stay - - - - - - - 19/- each.
QUALITY 2. Fitted with iron peg stay - - - - - 18/- „
QUALITY 1a. As described above for casements hung at side - 22/- „

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 6/- each. Circular on plan, 6/- ea.
BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.
Rebated cross bars for housing into wood frames, 4d. each bar.
EXTRA WIDTHS. For widths over 2ft. add 3d. per inch.
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.
BEVELLED SLIPS. See above.

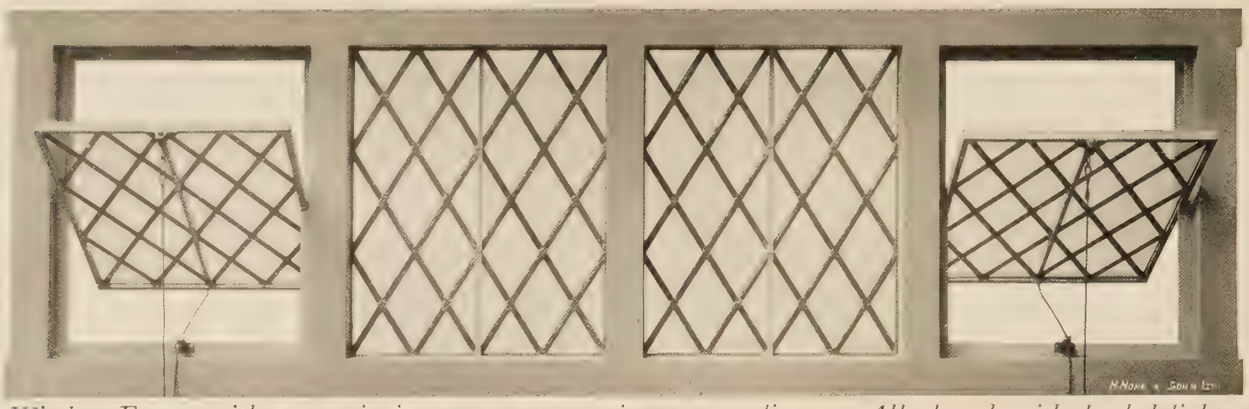
NOTE.—The rebate in wood frames must be 1½ inches × ½ inch when slips are used.

DETAIL SHEWING BEVELLED SLIPS

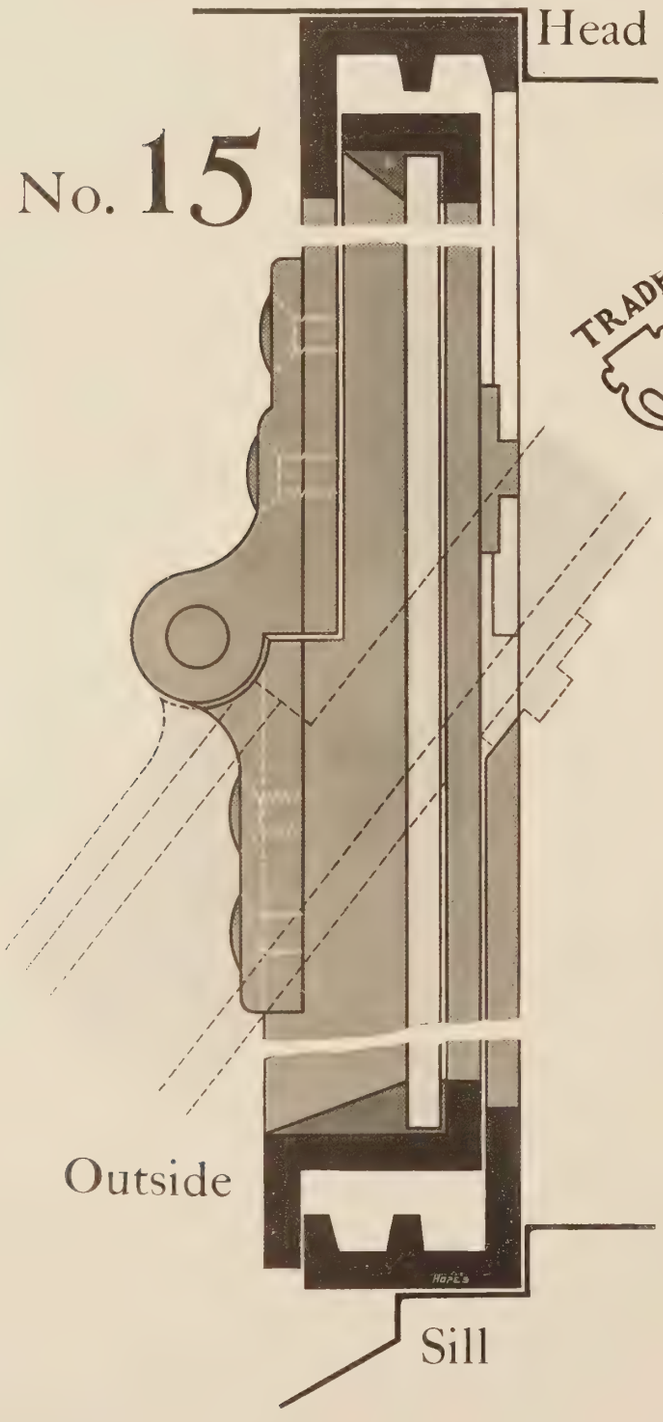


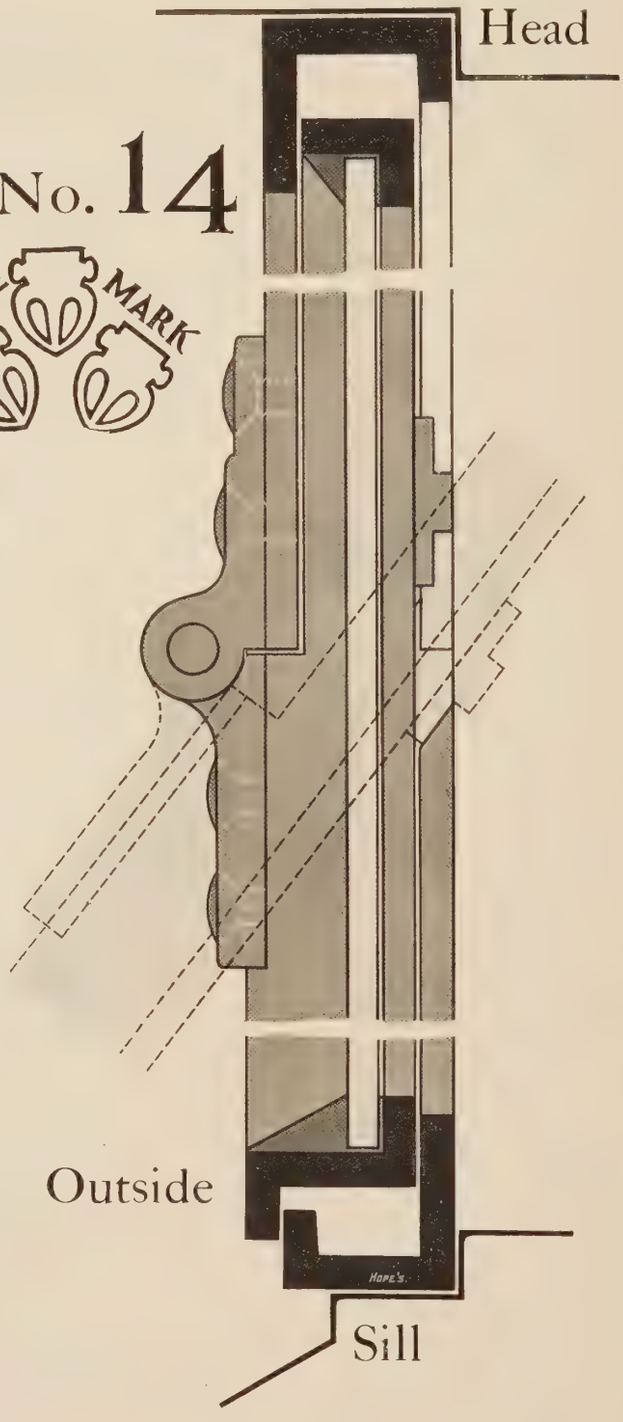
Plan of jamb
Half full size

SWINGING CASEMENTS
WITH FRAMES



Window Frame with two swinging casements, section 14, *quality* 1. *All glazed with leaded lights in diamond panes.*





DETAILS FULL SIZE

HOPE'S SWINGING CASEMENTS SPECIFICATION

Each section is of solid rolled English mild steel.
All joints cut on specially designed milling machines, ensuring a perfect fit.
The corners of inside and outside frames are rivetted and brazed. All brazed joints are sand-blasted. (*This process removes the brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint*).
The hinges are gun-metal, entirely machine made, with phosphor bronze pins. The fittings are of the best possible materials.

SECTION 15

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring bolt and cord cup and pulley.
QUALITY 2. Finished and painted as last, but fitted with cord cup and pulley.
QUALITY 1a. The same fittings as quality 1. The surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Fillets for Grooves
Not exceeding 2ft. 6in. :	29/-	27/-	32/-	2/6
,, ,, 3ft. : :	30/-	28/-	33/-	2/6
,, ,, 3ft. 6in. :	31/6	29/6	34/6	3/-
,, ,, 4ft. :	34/-	32/-	37/-	3/6

SECTION 14

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring bolt and cord cup and pulley.
QUALITY 2. Finished and painted as last, and fitted with cord cup and pulley.
QUALITY 1a. The same fittings as quality 1. The surfaces of the steel ground and finished perfectly smooth, oiled and painted two coats of white lead, and one coat of enamel.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Quality 1a	Fillets for Grooves
Not exceeding 2ft. : :	26/-	24/-	29/-	2/6
,, ,, 2ft. 6in. :	27/-	25/-	30/-	2/6
,, ,, 3ft. : :	28/6	26/6	31/6	3/-

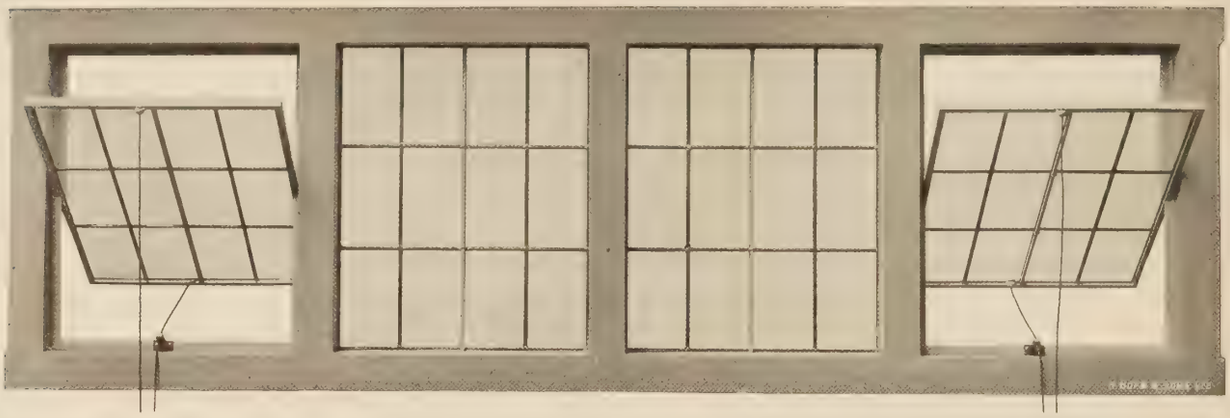
EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 6/- each.
BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.
EXTRA WIDTHS. For widths over 2ft. add 3d. per inch.
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.
FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.

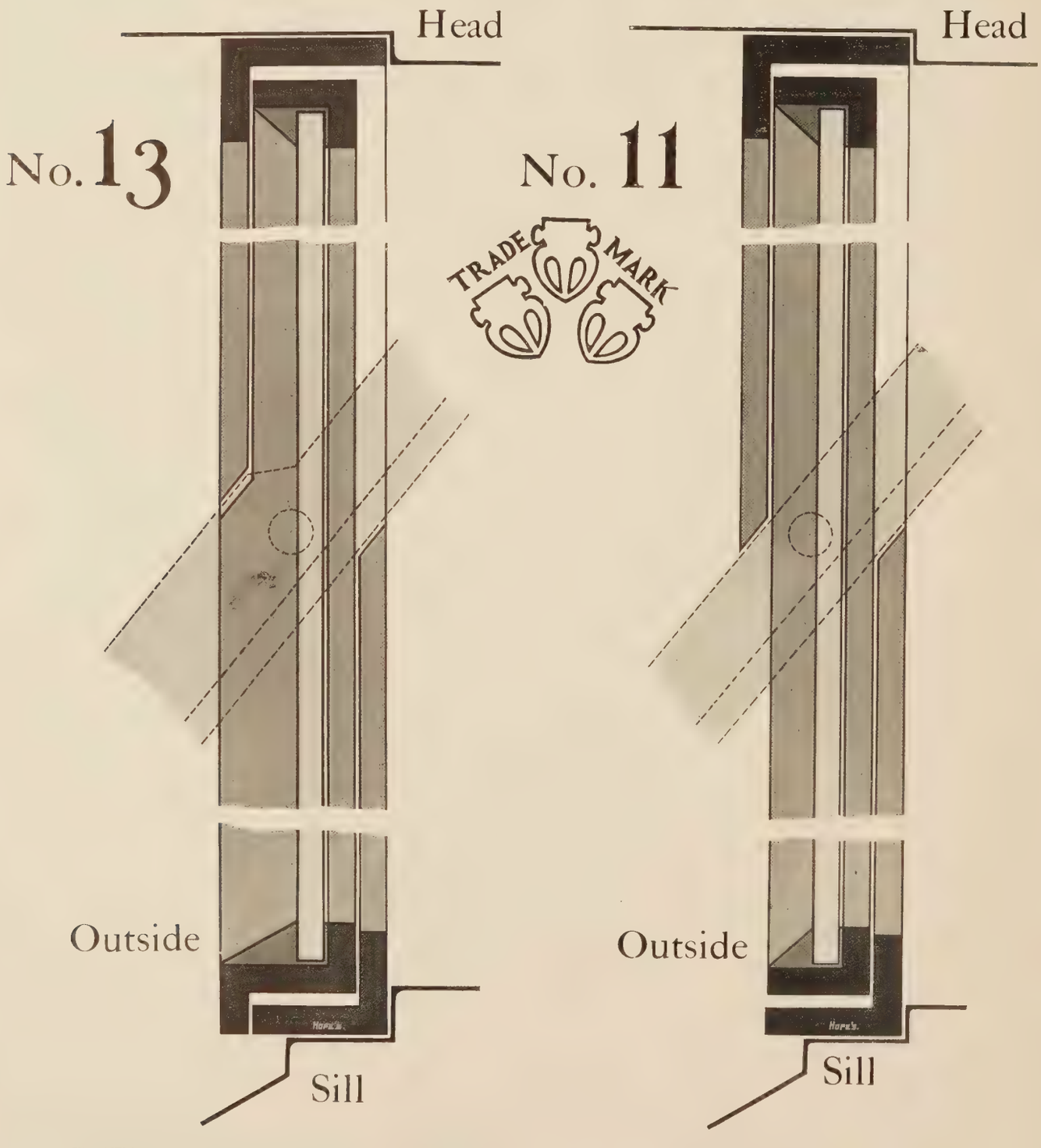
NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

SWINGING CASEMENTS
WITH FRAMES



Window Frame with two swinging casements, section 11, quality 2. All glazed with leaded lights.



DETAILS FULL SIZE

HOPE'S SWINGING CASEMENTS

SPECIFICATION

Each section is of solid rolled English mild steel.
All joints are cut on specially designed milling machines, ensuring a perfect fit. The corners of inside and outside frames are rivetted and brazed. All brazed joints are sandblasted. (*Sandblasting removes all brazing flux and scale, and leaves the surface of the steel in a perfect state to receive the paint.*)
The fittings are of the best possible materials and workmanship.

SECTION 13

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring bolt and cord cup and pulley.
QUALITY 2. Finished and painted as last, but fitted with cord cup and pulley.

HEIGHT by any width not exceeding 2 feet.	Quality 1	Quality 2	Fillets for Grooves
Not exceeding 2ft. : : : :	18/6	16/6	2/6
,, ,, 2ft. 6in. : : :	19/-	17/-	2/6
,, ,, 3ft. : : : :	20/-	18/-	2/6

SECTION 11

QUALITY 1. Oiled and painted two coats of white lead, and fitted with gun metal spring bolt and cord cup and pulley.
QUALITY 2. Finished and painted as last, but fitted with cord cup and pulley.

HEIGHT by any width not exceeding 2 feet	Quality 1	Quality 2	Fillets for Grooves
Not exceeding 2ft. : : : :	16/6	14/6	2/6
,, ,, 2ft. 6in. : : :	17/-	15/-	2/6
,, ,, 3ft. : : : :	18/-	16/-	2/6

EXTRAS

SPECIAL SHAPES. Circular or gothic heads, 6/- ea.
BARS. Casements divided into panes with rebated bars, 9d. per pane.
Saddle bars for leaded lights, 10d. each bar.
EXTRA WIDTHS. For widths over 2ft. add 3d. per inch.
ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices of qualities 1 and 2.
FIXED LIGHTS. For prices of fixed lights of plain L sections, see page 47.
NOTE.—All the list prices are for casements with square heads prepared to fix in outside rebates, and to receive plate glass in one sheet.
IMPORTANT.—For instructions as to ordering see pages 80 & 81.

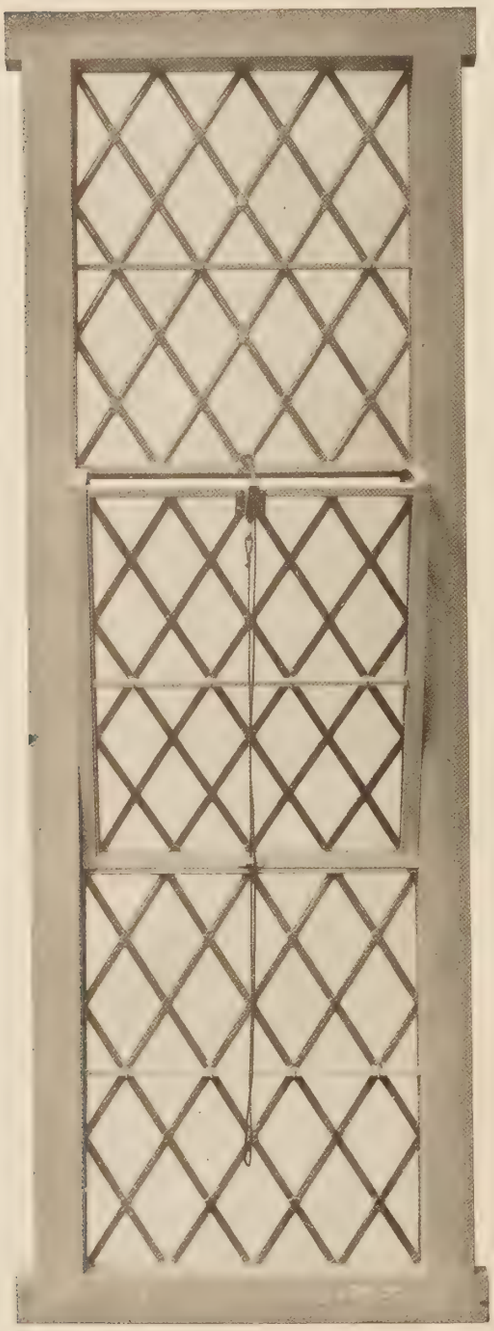
HOPPER CASEMENTS

SECTION 12a (As detail below)

QUALITY 1. Fitted with gun metal spring bolt and pulleys, to work with cords, up to 2ft. 6in. high - - - - - - 19/6 each.
QUALITY 2. Fitted with gun metal spring bolt, to work with window stick - - - - - - - - - 17/6 „

SECTION 12b (Stronger section)

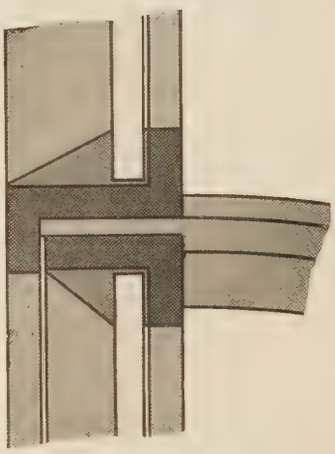
QUALITY 1. As above, up to 3ft. 6in. high by 3ft. wide - - 32/- each.
QUALITY 2. „ „ „ „ „ - - 30/- „
Saddle bars for leaded lights, 10d. each bar extra. Fillets for grooves, 1/9 each extra.



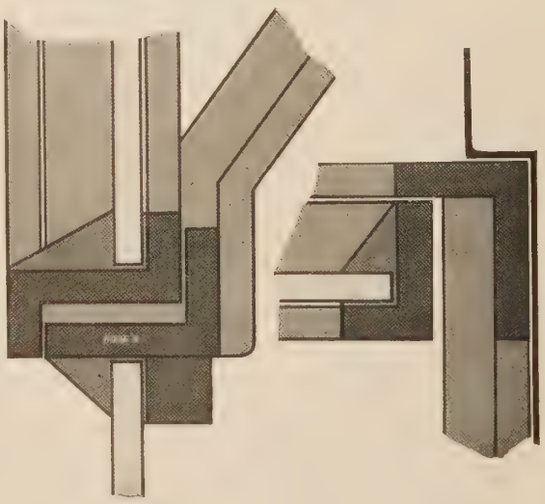
Window frame with one hopper, quality 1, glazed with leaded lights.

TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM·

DETAILS FULL SIZE



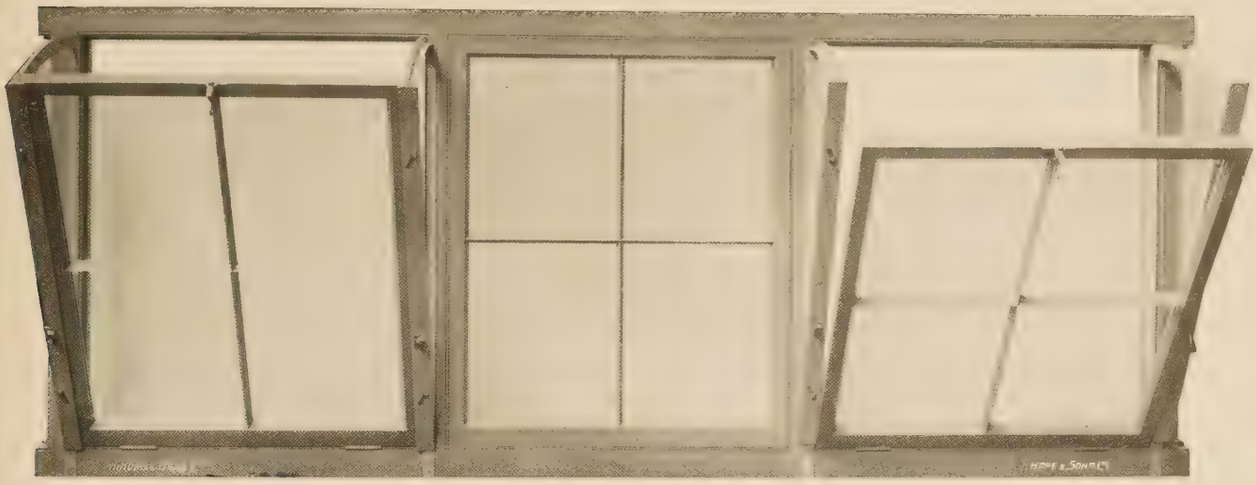
Vertical section through hopper



Section through jamb and cheek

N.A.P. PASSABLE HOPPER CHEEKS

Manufactured under Licence from the Patentees



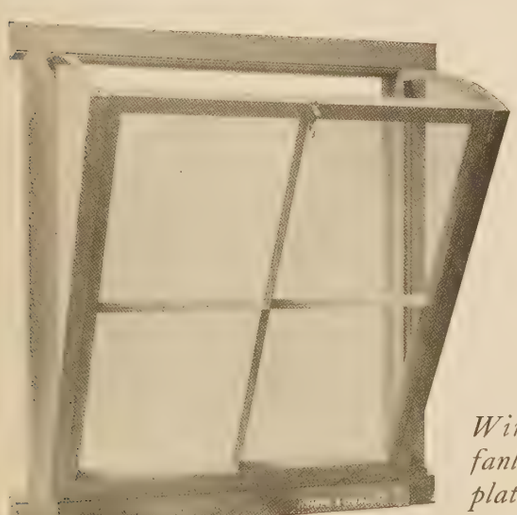
Window frame with two hopper casements, one resting on face-plate, the other "passed," or free for cleaning.

As will be seen from the photograph, these cheeks are designed to allow of fanlights being folded right back for cleaning. The face-plates, on which the fanlights rest when open, are provided with inclined slots and hung on pins attached to the cheeks. Both plates can be raised with a lateral motion by means of hooks provided for the purpose, so that the fanlight can pass. One only of each pair is provided with a simple catch to keep the face-plate in its raised position, so as to leave both hands free to hold the other plate back while opening the fanlight. On releasing the hooks both plates automatically return to their original position.

HEIGHT	Prices per pair.	Fittings suitable for N.A.P. Cheeks, or Plain Cheeks
Not exceeding 2ft. : :	9/6	Gun metal ball catches, 3/- per pair.
,, ,, 2ft. 6in. :	10/6	Gun metal spring catch and
,, ,, 3ft. : :	11/9	striking plate - - 3/3 each.
,, ,, 3ft. 6in. :	13/-	Gun metal 3in. butts, 2/- per pair.

If an iron bar is required to connect the tops of cheeks to ensure greater rigidity, 1/- each extra.

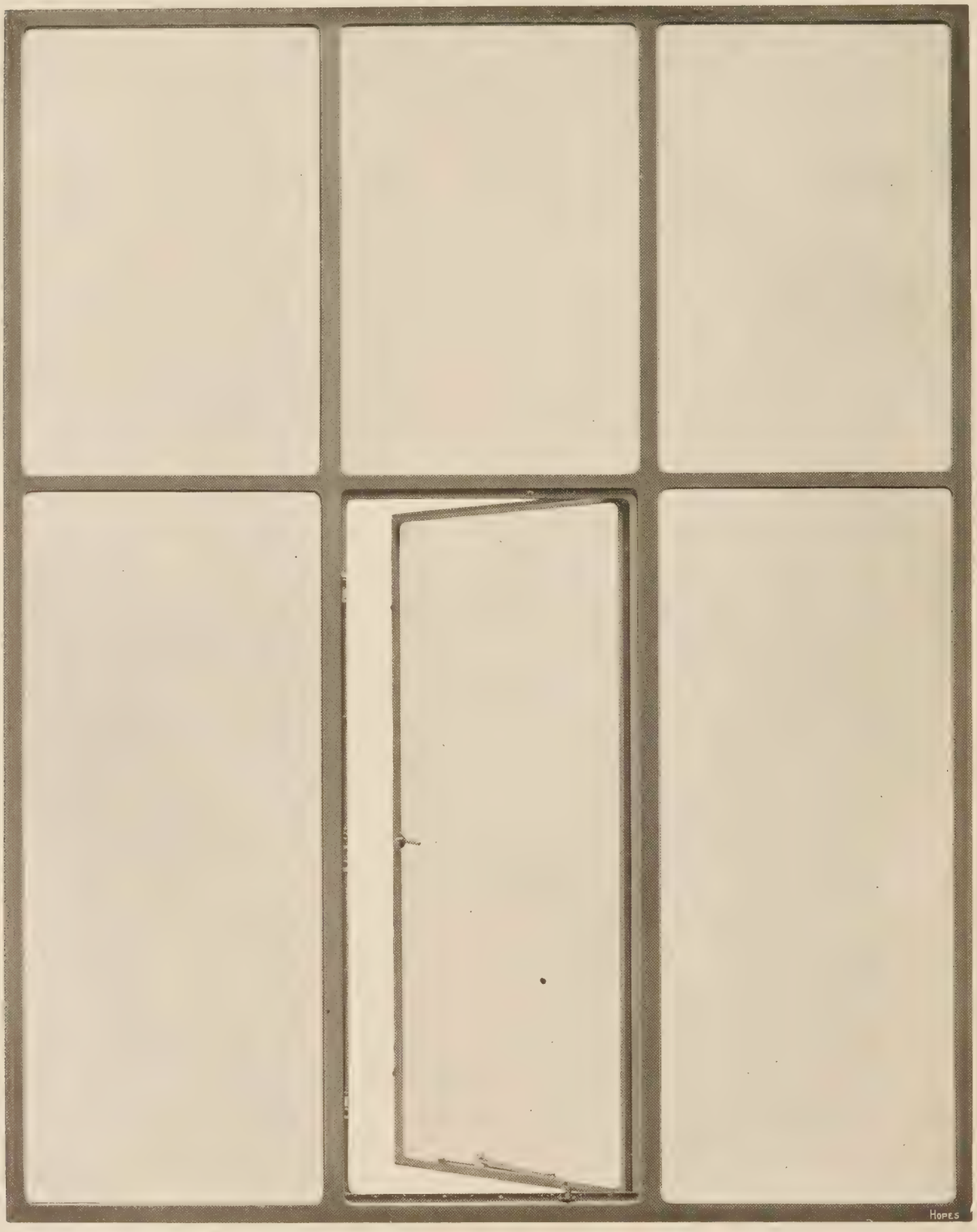
PLAIN HOPPER CHEEKS



Similar to above but without patent N.A.P. passable face plates.
Any size up to 3ft. high, 7/- per pair.
Prices of spring catches, hinges, etc., same as above.

Window frame shewing wood fanlight open and resting on face plates of plain hopper cheeks.

HOSPITAL WINDOWS
for OPERATING ROOMS, *Etc.*

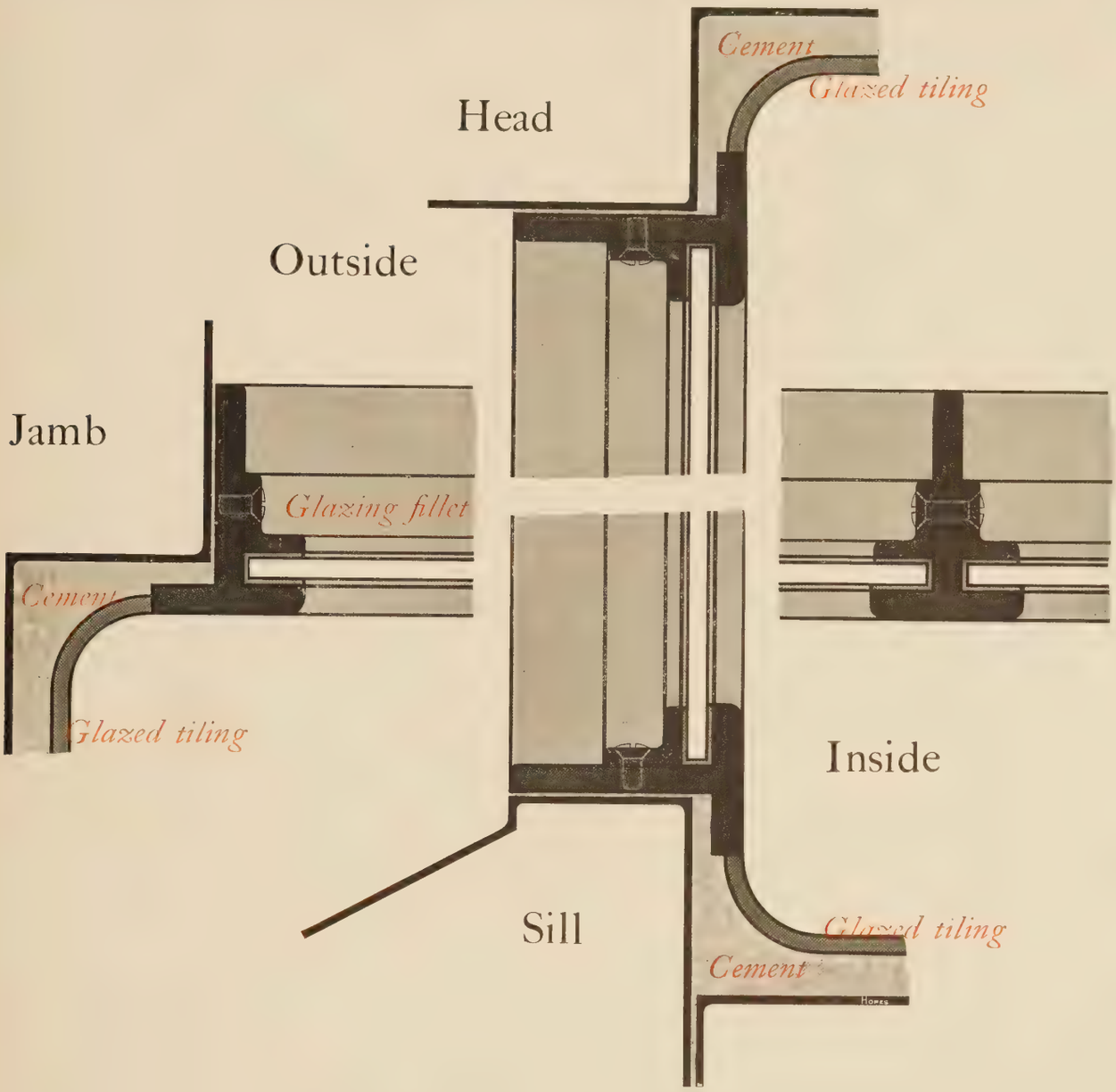


Inside view of window 12 ft. high by 9 ft. wide.

See opposite page for details.

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

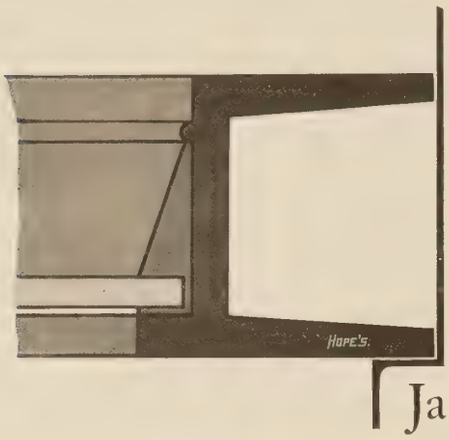
HALF FULL SIZE DETAIL *of* HOPE'S HOSPITAL WINDOWS



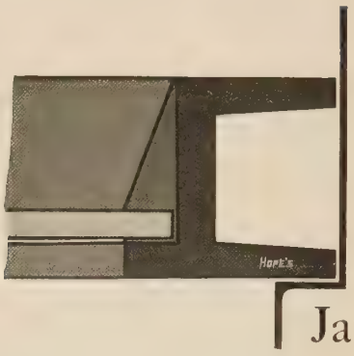
NOTE.—We have made a special study of the construction of hospital windows to meet modern requirements, and will be pleased to furnish details and samples together with estimates of the cost for windows of this description. We construct the framing of steel, presenting only highly finished flat surfaces on the inside with edges and angles rounded, while all the joints are *welded* solid. Our methods allow of the lightest sections of framing being employed with very large panes of glass, giving the minimum of obstruction to the light. Opening casements also have the edges and angles rounded and can be applied in any form to suit different requirements.

METHOD OF FIXING. *Lugs of suitable shape are provided on the sides for cementing into the brickwork, but in cases where the walls are of stone, screw holes are provided for screwing to metal plugs.*

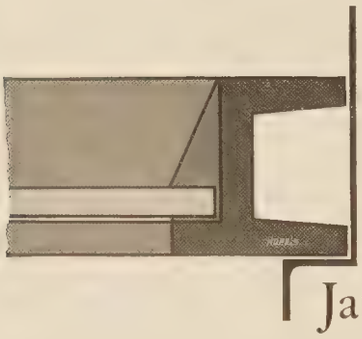
FIXED LIGHTS



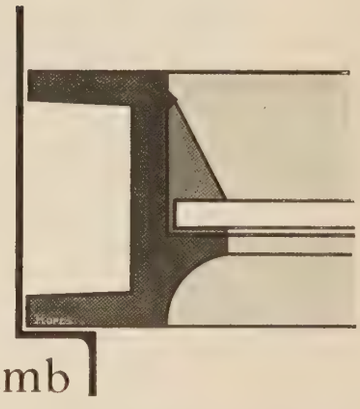
SECTION 1



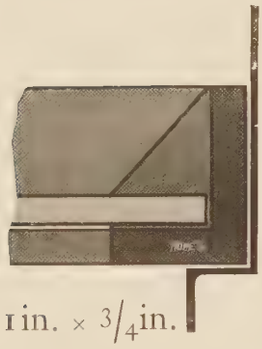
SECTION 2

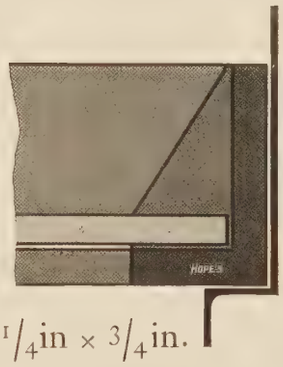


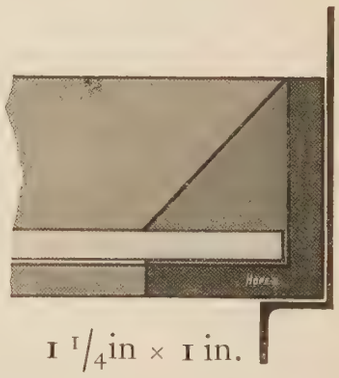
SECTION 3



SECTION 6


1 in. × 3/4 in.


1 1/4 in × 3/4 in.


1 1/4 in × 1 in.

ANGLE SECTIONS

DETAILS FULL SIZE

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

HOPE'S SECTIONS 1, 2, 3 & 6

FIXED LIGHTS

Made of rolled steel, as full size details shewn on the opposite page, shewing the same bulk of metal as the opening casements.

Sections 1 and 2 have gun metal condensation channels on the bottom rail.

HEIGHT by any width not exceeding 2 feet	Section 1	Section 2	Section 3	Section 6	Fillets for Grooves
Not exceeding 3ft. : :	14/-	11/-	8/6	11/-	2/6
,, ,, 3ft. 6in. :	15/-	12/-	9/-	12/-	3/-
,, ,, 4ft. : :	16/-	13/-	10/-	13/-	3/-
,, ,, 4ft. 6in. :	17/-	14/-	11/-	14/-	3/-
,, ,, 5ft. : :	18/-	15/-	12/-	15/-	4/-
,, ,, 5ft. 6in. :	19/-	16/-	13/-	16/-	4/-
,, ,, 6ft. : :	20/-	17/-	14/-	17/-	4/6

ANGLE SECTIONS

Made of rolled steel as full size details on the opposite page.

HEIGHT by any width not exceeding 2 feet.	1¼ in. × 1 in.	1¼ in. × ¾ in	1 in. × ¾ in.	Fillets for Grooves
Not exceeding 3ft. : : : :	6/6	6/-	5/9	2/6
,, ,, 3ft. 6in. : : :	7/-	6/6	6/3	3/-
,, ,, 4ft. : : : :	7/6	7/-	6/9	3/-
,, ,, 4ft. 6in. : : :	8/-	7/6	7/3	3/-
,, ,, 5ft. : : : :	9/-	8/6	8/-	4/-
,, ,, 5ft. 6in. : : :	11/-	10/-	9/6	4/-
,, ,, 6ft. : : : :	13/-	12/-	11/6	4/6

EXTRAS

SPECIAL SHAPES. Circular or gothic heads or circular on plan, section 1 6/- each, sections 2, 3 and 6 4/- each. Angle sections 3/- each.

BARS. Casements divided into panes with rebated bars, 9d. per pane. Saddle bars for leaded lights, 10d. each bar.

EXTRA WIDTHS. For widths over 2ft. add 3d. per inch for sections 1, 2, 3 and 6. Angle sections 2d. per inch.

ENAMELLING. For enamelling one coat in addition to the two coats of paint add 5 per cent. to the prices.

GLAZING FILLETS. Galvanized steel fillets with brass screws for securing glass without front putty (strongly recommended for large fixed lights glazed with plate glass), 4d. per lineal foot of fillet.

NOTE.—All the list prices are for fixed lights with square heads prepared to fix in outside rebates, as detail on page 46, and to receive plate glass in one sheet.

IMPORTANT.—For instructions as to ordering see pages 80 & 81.

HOPE'S PATENT *TWO-POINT* CASEMENT FASTENER

Designed to keep a side-hung casement open about one inch for ventilation.
It is one fitting in place of two, as it secures the casement when closed or when slightly open.
It is perfectly rigid at both points.

Applied to any of our designs of casement handles, quality 1, catalogue No. 6, without extra charge.

HOPE'S CABIN HOOK

An alternative to the "two-point" fastener. Supplied where it is desired to keep the casement open about $2^1/_2$ inches.

This cabin hook is of special design, made of hard bronze, and will hold the casement quite securely without rattling in a wind.

NOTE: We have introduced the two fittings illustrated above, to overcome the difficulty in obtaining "a little ventilation" with a casement window. Hitherto many people who appreciate the neat appearance and weather-tight qualities of metal casements have objected to their use solely on account of this little difficulty. Architects specifying "Hope's" casements can now assure their clients that this difficulty no longer exists, as either of the above fittings is included in the price, and where no choice is specified we shall use our own judgment, but in all cases either the Two-point Handle or the short Cabin Hook will be provided.

CASEMENT FITTINGS

All our fittings have been carefully designed and modelled with a view to their fitness in every detail for the purpose they have to serve, and while all our designs are original, we have tried to avoid mere novelty, and have relied upon the perfection in detail of quite simple forms. We make two qualities only, gun metal (called quality 1) and wrought iron, or, in a few cases, malleable iron (called quality 2). Each quality is the best of its kind, and the same care is bestowed upon the mechanical parts of both. In the manufacture of gun metal fittings, we allow no manipulation of the form of the casting by hand filing or "dressing." We have produced, by the aid of first-class designers and modellers, a range of patterns of some excellence, and by employing great care in the sand moulding and casting, we produce castings with a perfect "skin," which are exact reproductions of the modeller's work, and which only require machining and polishing to become finished articles.

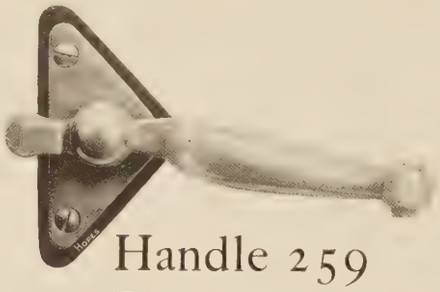
The necessary tooling of all the working parts is performed upon machines of great precision, and by our system of gauging and inspection, all fittings of each pattern are interchangeable.

Our wrought iron fittings are all hand-forged (the working parts being made in dies so as to ensure uniformity), and the same methods are employed in the machining as for gun metal. We employ malleable iron of the best quality for a few of our handles and stays, the patterns of which do not lend themselves to forging, but the bulk of our iron fittings, and particularly the handle plates and jaws which have to be welded or brazed to the casements, are made of the best quality drop forgings of mild steel.

NOTE. *The Fittings, as illustrated in the following pages, are only supplied for our metal casements. We have a complete line of similar fittings adapted for wood casements, and will send special catalogue of these upon application.*

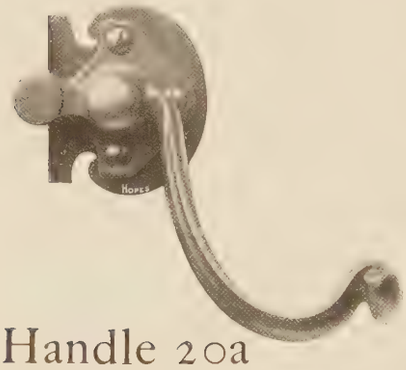
HOPE'S GUN METAL HANDLES

Handle 497
Plate 533



Handle 259
Plate 533

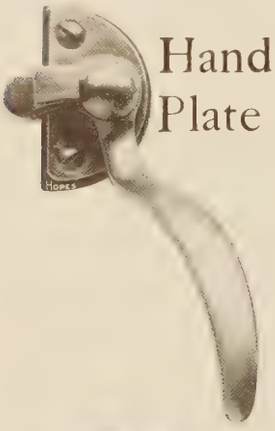
Handle 499
Plate 208



Handle 20a
Plate 213

Handle 495
Plate 208

Handle 577
Plate 890



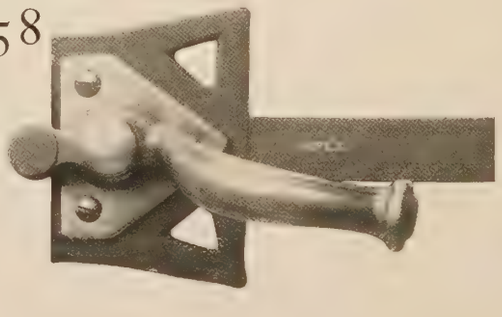
Handle 963
Plate 890

Handle 20a (small)
Plate 207

Handle 962
Plate 208

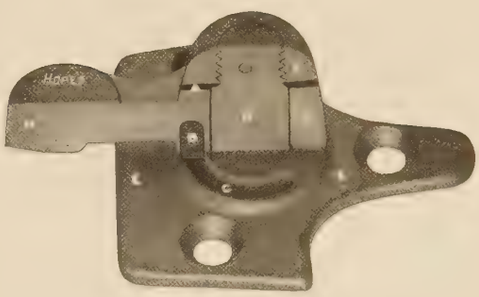
Handle 541
Plate 208

Handle 258
Plate 557



HOPE'S
GUN METAL HANDLES
Specification

The handles are bored and faced both sides of the boss and mounted on the pin-plate, which is turned to a plug fit and secured by our special device with cap and washer, which retains the handle at uniform pressure and prevents its getting loose with wear. A machine-cut quadrant with steel stop prevents the handle from moving beyond the one quarter of a circle necessary for opening and closing. The gun metal is a mixture of copper, tin and spelter, to Admiralty specification, fine cast, brushed and bronzed to a nut brown tone, or polished bright.



A, *washer*. B, *steel stop*. C, *quadrant*. (D, *pin*, & E, *pin-plate*, *in one casting*.) F, *cap*. G, *boss*. H, *nose of handle*.

NOTE.—Any of the handles on the opposite page may be selected for qualities 1 and 1a, sections 1, 1a and 1c, 2, 2a and 2c, 4, 4a and 4c, 5 and 6.

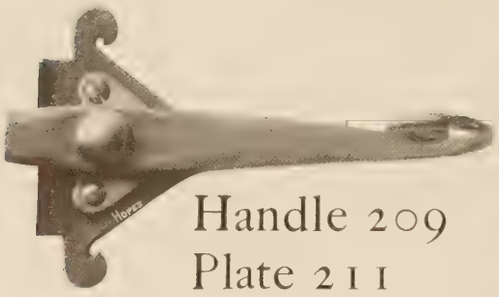
For sections 3 and 9, handles, Nos. 258, 497, 577 and 963 only may be selected. The remainder will be supplied with these cheaper sections at an extra price of 1/- each.

The plates illustrated are adapted for casements opening outwards, for casements opening *inwards* modified designs are employed.

The handles need not necessarily be used in conjunction with the plates attached to each, but may be varied as desired.

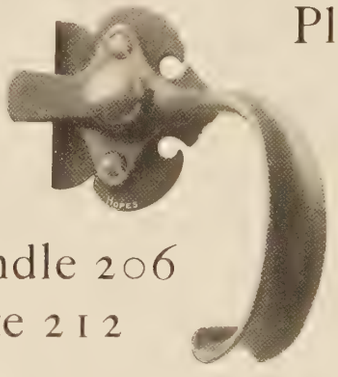
TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

HOPE'S IRON HANDLES



Handle 209
Plate 211

Handle 208
Plate 208



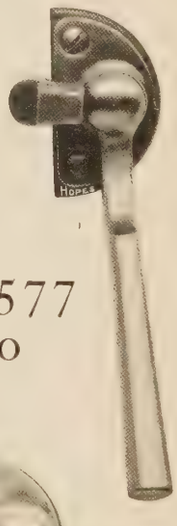
Handle 206
Plate 212

Handle 207
Plate 207

Handle 575
Plate 208

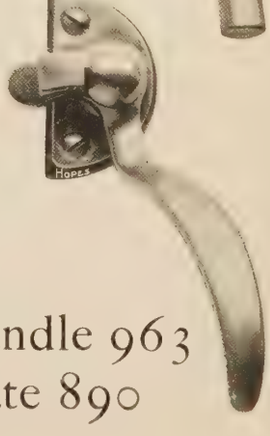
Handle 576
Plate 533

Handle 497
Plate 212



Handle 577
Plate 890

Handle 210
Plate 210

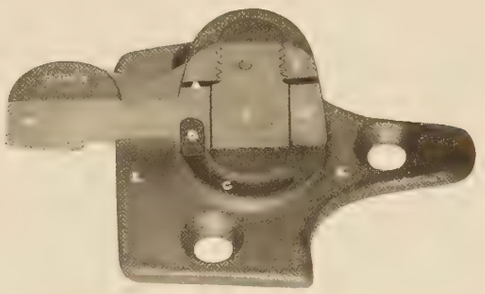


Handle 963
Plate 890

HOPE'S IRON HANDLES

Specification

The handles are bored and faced both sides of the boss and mounted on gun metal pin-plate, which is turned to a plug fit, secured by our special device with cap and washer, which retains the handle at uniform pressure and prevents its getting loose with wear. A machine-cut quadrant with steel stop prevents the handle from moving beyond the one quarter of a circle necessary for opening and closing.



A, *washer.* B, *steel stop.* C, *quadrant.* (D, *pin,* & E, *gun metal pin-plate, in one casting.*) F, *cap.* G, *boss.* H, *nose of handle.*

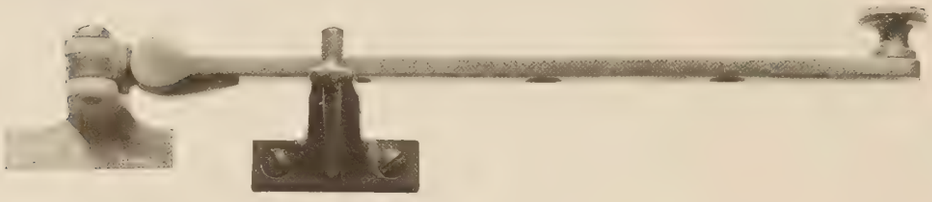
NOTE.—Any of these handles (except No. 210) may be selected for quality 2 of all sections Handle No. 210 is only supplied with plate No. 210 which must be fitted to a saddle bar across the casement. An extra charge is made for this pattern, including the bar, of 2/- each.

The plates illustrated are adapted for casements opening outwards, for casements opening *inwards* modified designs are employed.

With the exception of No. 210 *the handles need not necessarily be used in conjunction with the plates attached, but may be varied as desired.*

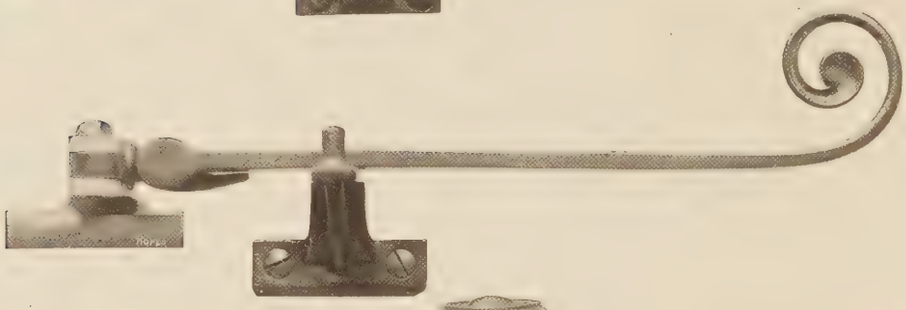
TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

HOPE'S GUN METAL STAYS

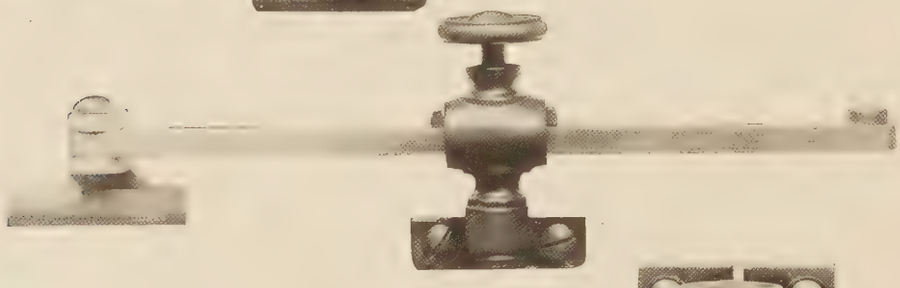


Peg Stay
218

Peg Stay
226

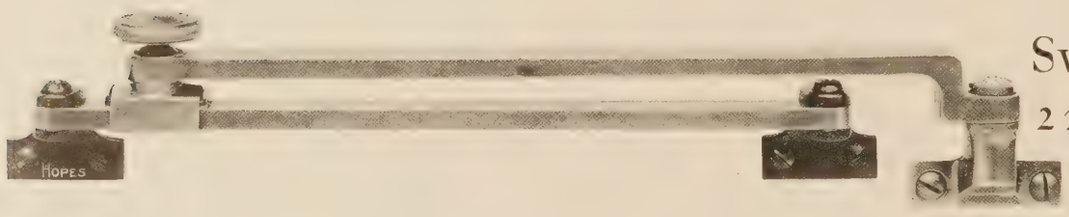


Peg Stay
219

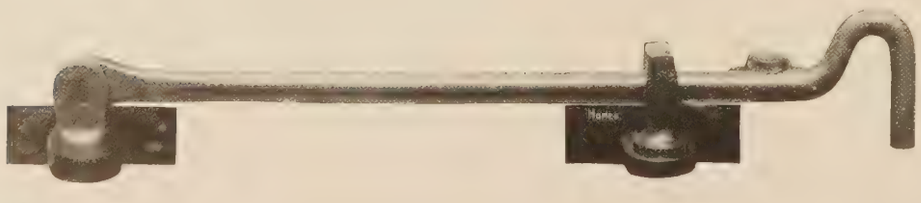


Swivel Stay
221

Swivel Stay
222
For casements
opening inwards



Swivel Stay
223



Cabin Hook
& Rest 220
For casements
opening inwards

HOPE'S GUN METAL STAYS

Specification

SWIVEL STAYS

The box, screw, and bracket made of fine cast gun metal, and the bar of hard-drawn bronze.

The pivot of the box is turned and the bracket bored to fit, the two being held together by a rivetted washer fitting against a shoulder on the pivot.

The ample depth given to the pivot working in the bracket obviates the risk of loosening or bending.

The screw is carefully turned and threaded so as to give a true central pressure upon the gib in tightening up the stay.

A, *box*. B, *bracket*. C, *bar*. D, *gib*. E, *screw*. F, *washer*. G, *pivot*.

PEG STAYS

Fine cast gun metal, the jaw and tongue machined to a perfect fit. The pins are turned and the holes bored to the same taper, so that the stay drops easily on the pin and holds the casement open without rattling. All peg stays are provided with Hope's combined pin and rest, Regd. No. 410530. The gun metal is a mixture of copper, tin and spelter, to Admiralty specification, fine cast, brushed and bronzed to a nut brown tone, or polished bright.

HOPE'S SWIVEL STAY No. 223 *is a special pattern which does not project inside when open at any angle. It also holds the casement rigid when only open a little way. An extra charge of* 2/6 *each is made for this pattern, which is only supplied for qualities* 1 *and* 1a.

NOTE.—For quality 1, sections 1, 1c, 2, 2c, 4, 4c, 5 and 6, stays Nos. 218, 226, 219, or 221 may be selected.

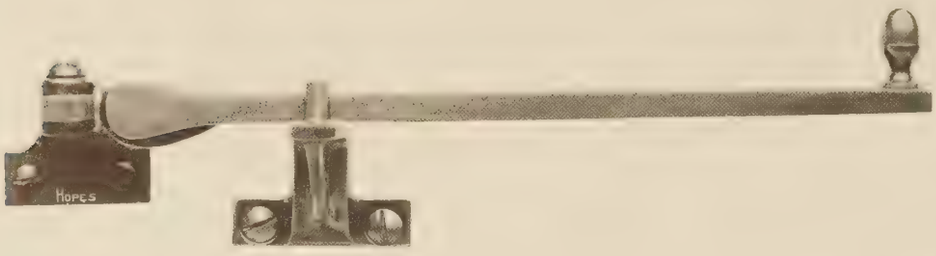
For sections 1a, 2a, 3a and 4a, opening inwards, stays Nos. 222 or 220 may be selected.

For sections 3 and 9, stays Nos. 218 and 226 are included in the price, but Nos. 219 or 221 will be supplied at an extra price of 1/- each.

TRADE MARK

HOPE'S IRON STAYS

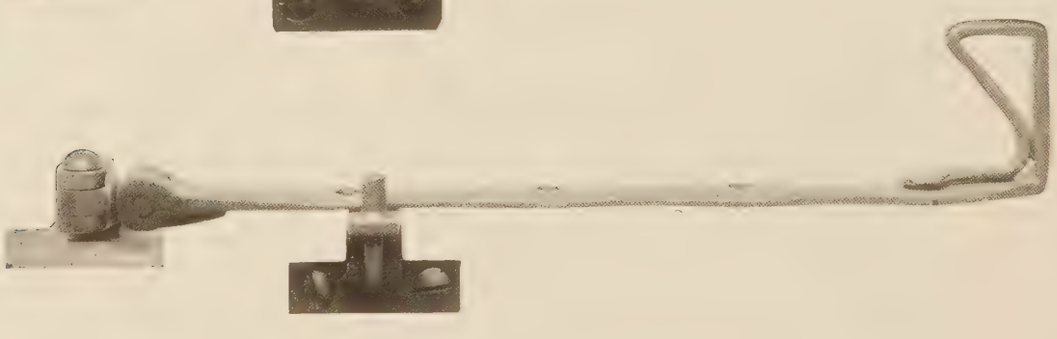
Peg Stay
218



Peg Stay
226

Peg Stay
219

Peg Stay
384



Peg Stay
385

NOTE.—Any of these stays may be selected for quality 2 for all sections except 3 and 8. For sections 3 and 8, stays Nos. 218 or 219 only may be selected. The remainder will be supplied with these two sections at an extra price of 6d. each. All peg stays are provided with Hope's combined pin and rest, Regd. No. 410530.

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM

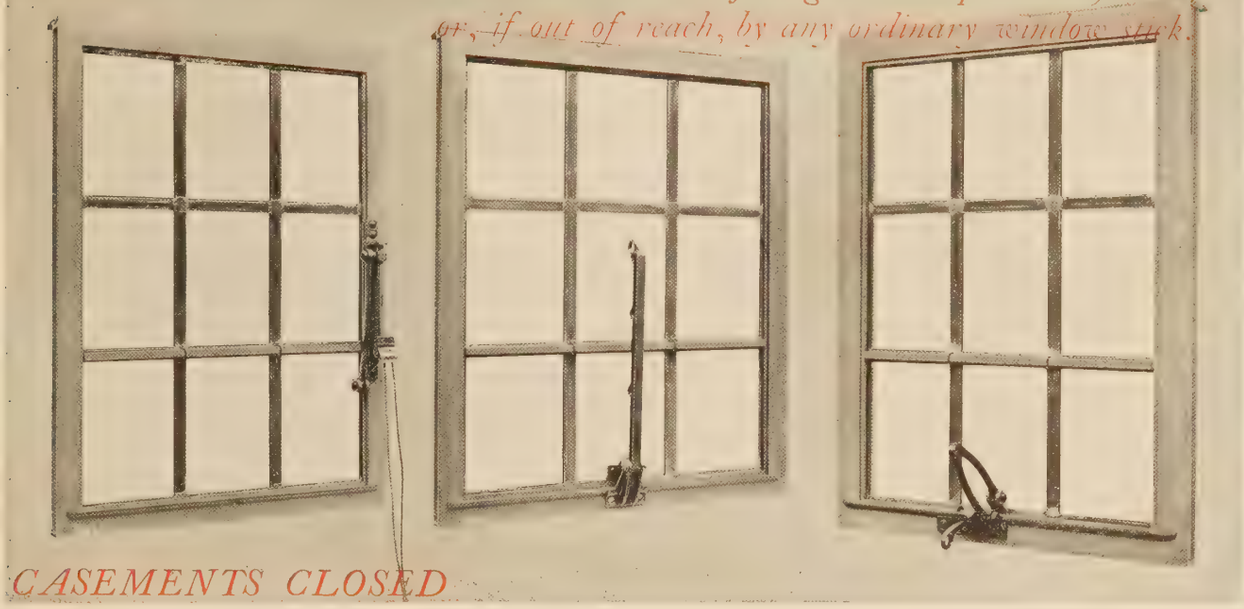
SPECIFICATION

Stays Nos. 218, 219, 384 and 385 are made of hand forged wrought iron. Stay No. 226 is best quality malleable iron. The pins are turned and the holes bored to the same taper, so that the stay drops easily on to the pin and holds the casement open without rattling.

HOPE'S FITTINGS *for* CASEMENTS HUNG AT TOP

CASEMENTS OPEN

NOTE—These two fittings can be operated by hand, or, if out of reach, by any ordinary window stick.



CASEMENTS CLOSED

As much difficulty is sometimes met with in the selection of a fitting for casements hung at top to open outwards, we give these illustrations and description so that each class of fitting may be clearly understood.

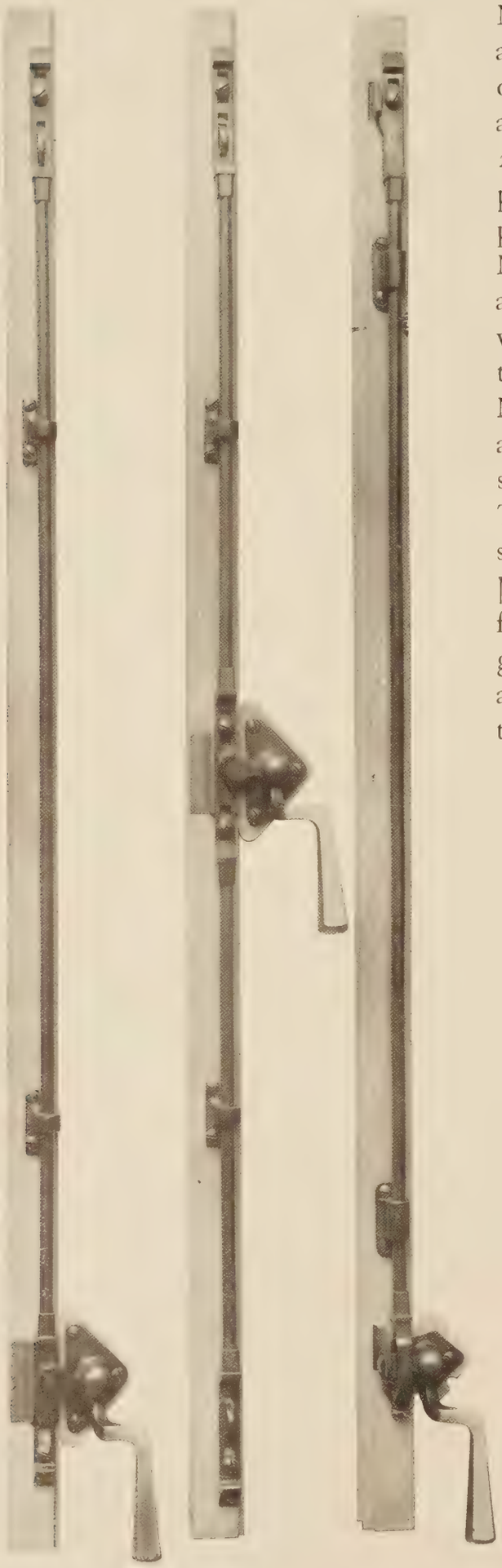
HOPE'S SCREW OPENER is a reliable fitting where it is desired to open and close a casement with a cord without a projecting arm inside. As it is of necessity attached to the side of a casement it is not recommended for casements over 18 inches wide, maximum opening 6½ inches.

HOPE'S PATENT CAM OPENER is made to open one, two or three distances as required, and can be made either to fold up (as illustrated) or down when closed. Maximum opening dependent only on length of arm. Projection inside when closed 1¾ inches.

HOPE'S JOINTED ARM OPENER is a very simple strong fitting, which opens the casement one distance only, maximum opening 9 ins., projection inside 4¼ ins.

NOTE. The above fittings are all made of the best gun metal and are included in the prices of casements where they are specified.

HOPE'S
DOUBLE & TREBLE GRIP BOLTS



No. 1 No. 2 No. 3

No. 1 is our double grip sliding bolt, as applied to casements (with frames) opening outwards, over 5ft. high, for sections 1, 1c, and 5, and over 4ft. 6in. high for sections 2, 2c, 4 and 4c. The handle is usually placed about 15in. above the sill. The photograph shews the bolt fixed to section 2.

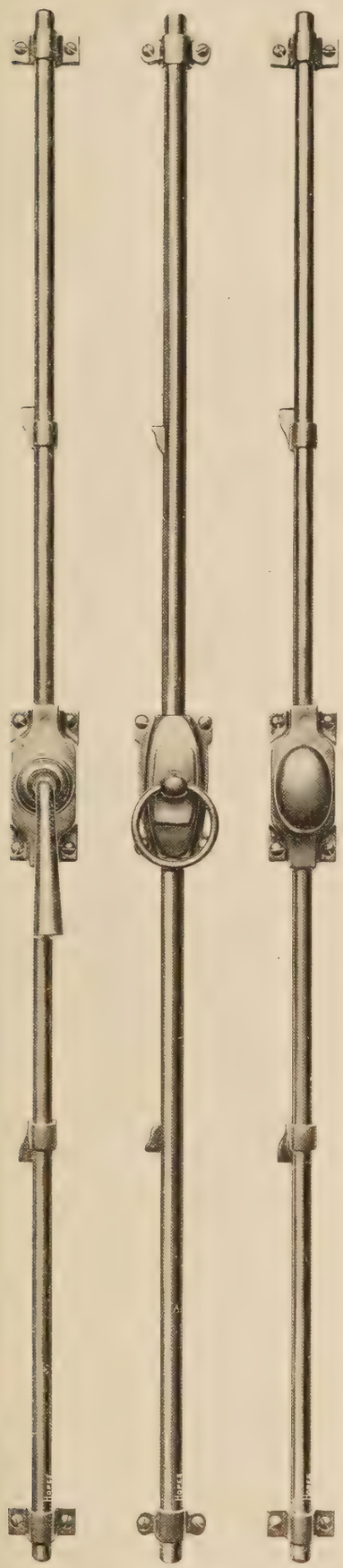
No. 2 is our treble grip bolt. This is only applied to exceptionally large casements when it is more convenient for the handle to be in the centre of the casement.

No. 3 is our double grip sliding bolt, as applied to casements (with frames) of sections 1a, 2a, and 4a, opening *inwards*. The photograph shews the bolt fixed to section 2a.

NOTE.—The bolts are of the best manufacture throughout with gun metal slides, guides and hooks, and hard bronze rods, and are included in the prices of casements where they are specified.

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

HOPE'S ESPAGNOLETTE BOLTS



These espagnolette bolts are fitted to all French casements (without mullion) over 4ft. 6in. high. Nos. 917 and 918 have stout round bronze rods and are fitted to sections 1 and 1a. No. 560, which is of lighter make, has rods of D section and is supplied with sections 2 and 2a. All are included in the prices of the casements on pages 31 and 33.

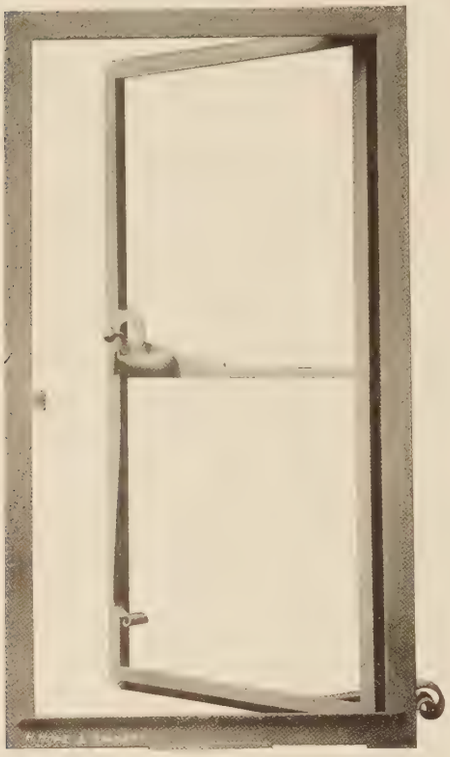
SPECIFICATION

The case, handle and guides are of fine cast gun metal, and the rods are hard drawn bronze, all fitted and finished in the best manner and either bronzed to a nut brown tone or polished bright.

TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

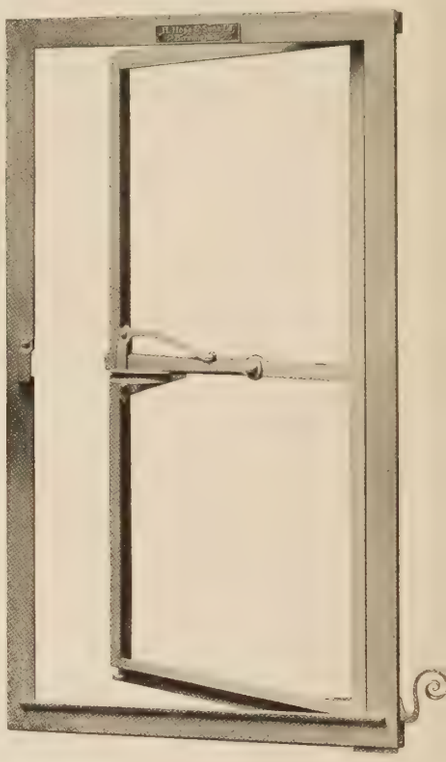
918 560 917

HOPE'S
SPRING LATCHES & QUADRANTS

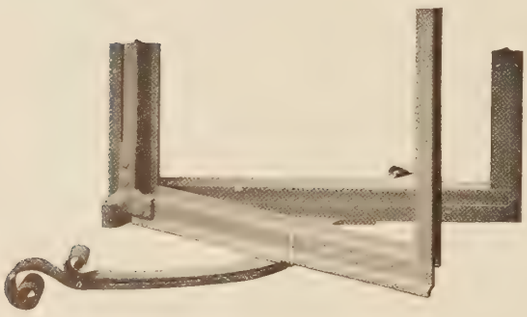


The "Corsham" Latch & Quadrant. Inside.

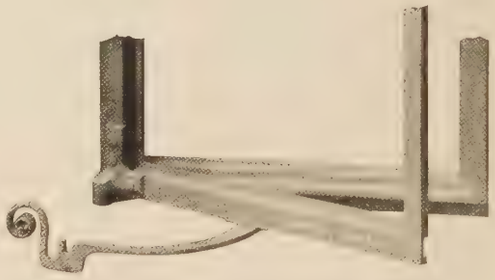
TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·



The "Broadway" Latch & Quadrant. Inside.



Quadrant from Outside.



Quadrant from Outside.

SPECIFICATION

The latches and quadrants illustrated above are entirely hand-forged, and are so designed as to be self-locking, *i.e.*, they can be "slammed," and require no manipulation of the latch when being closed.

The "Corsham" quadrant has a top spring, upon which the casement takes its bearing. The "Broadway" quadrant is in itself a spring, the casement bearing upon it in the same way. The tops of the springs are in all cases carefully tinned and a piece of gun metal is brazed in the bottom of the casement at the point where it bears on the spring, thus obviating any tendency to rust at the points of contact.

Both latches are extremely simple and are strongly recommended for those who prefer hand-forged fittings of this type. Variations can be made to suit customers' requirements and sample forgings submitted for approval. Either of the above patterns can be applied to any section for an additional charge of 12/- each to the price of quality 1.

OPENING GEAR

LOWER MOOR BATHS, OLDHAM — J. Lindsay Grant, Architect

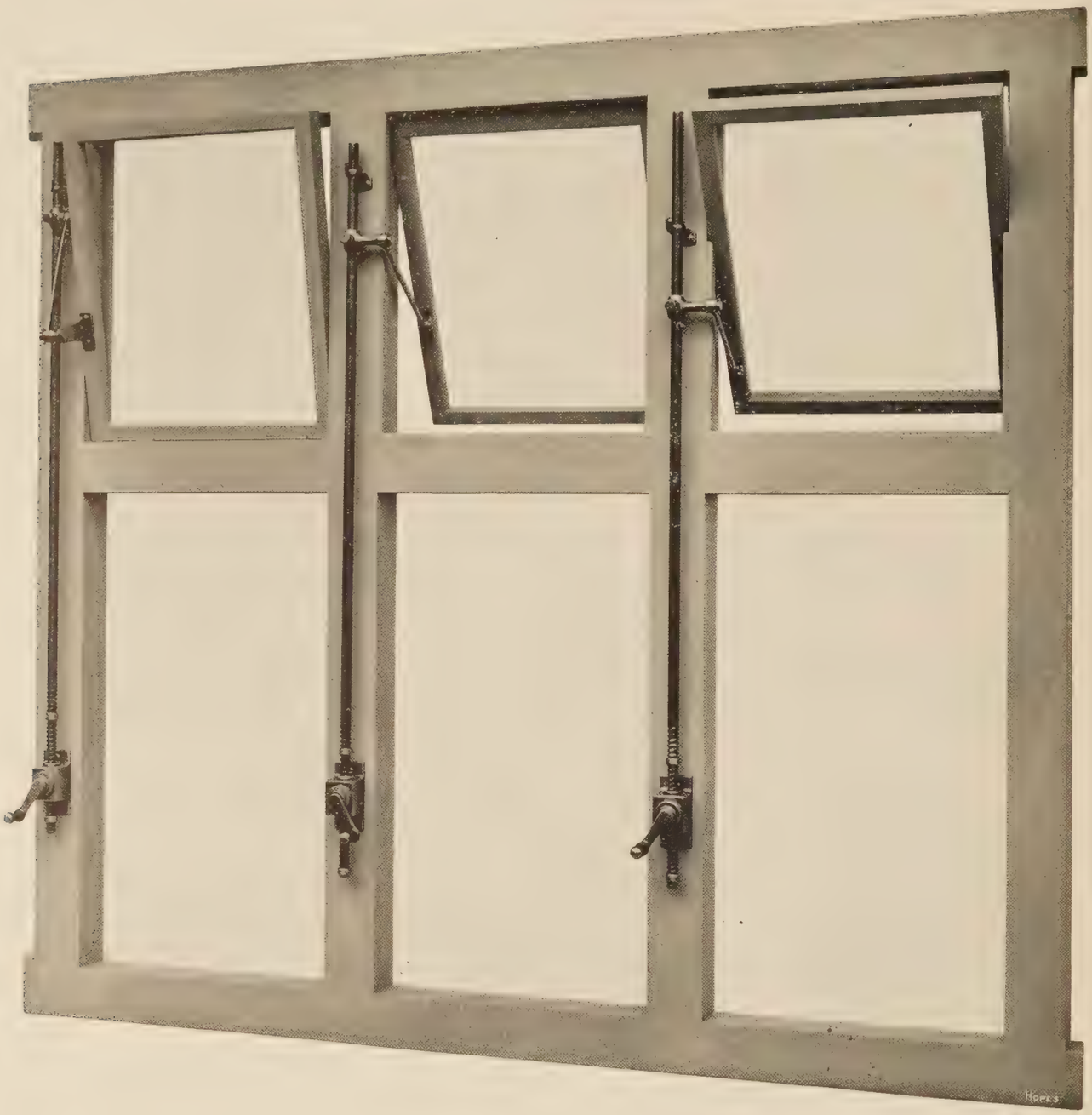
This photograph shews the application of Hope's gear to the lantern light of a swimming bath. The gear on each side is operated by a single screw regulator (A) *fixed on the end wall.*

The following pages, 62 to 66, are devoted to various types of opening gear, any of which can be applied when desired to the metal casements and windows in this catalogue instead of the standard fittings specified.

The illustrations and prices are for gearing prepared for fixing to wood windows or fanlights, and the standard patterns are all kept in stock.

Special quotations and detail drawings will be sent upon application for any form of gearing for baths, wash-houses, factories, schools, etc., etc.

HOPE'S LINK GEAR



HOPE'S LINK GEAR is specially suitable for *single* fanlights or fanlights in pairs not exceeding 2 feet square. The attachment being to the side of the light this pattern should not be used for large or heavy fanlights. It can be adapted (as shewn in the illustration) for fanlights hung at bottom, at top or to swing. The screws have lathe cut square threads and the regulators have machine cut wheels which are accurately in mesh, making them perfect and silent in action.

PRICES

	Steel Rods and Arms and Gun Metal Screw Regulators	All gun metal
To open 1 light : : : :	18/- each	27/- each
To open 2 lights : : : :	21/- each	32/- each

Prices are for rods up to 5 feet long, and for any of the three forms shewn above.
N.B.—When ordering state length of rod required and send detail of woodwork.

HOPE'S
SHAFT & LEVER GEAR

Hope's shaft and lever gear is suitable for opening lights of any size and can be adapted for opening very long ranges. The screws have square lathe cut threads and the regulators have machine cut wheels properly in mesh, making them perfect and silent in action.

The photograph shews our lightest pattern, which is neat and attractive in appearance and suitable for the upper lights in mullioned windows.

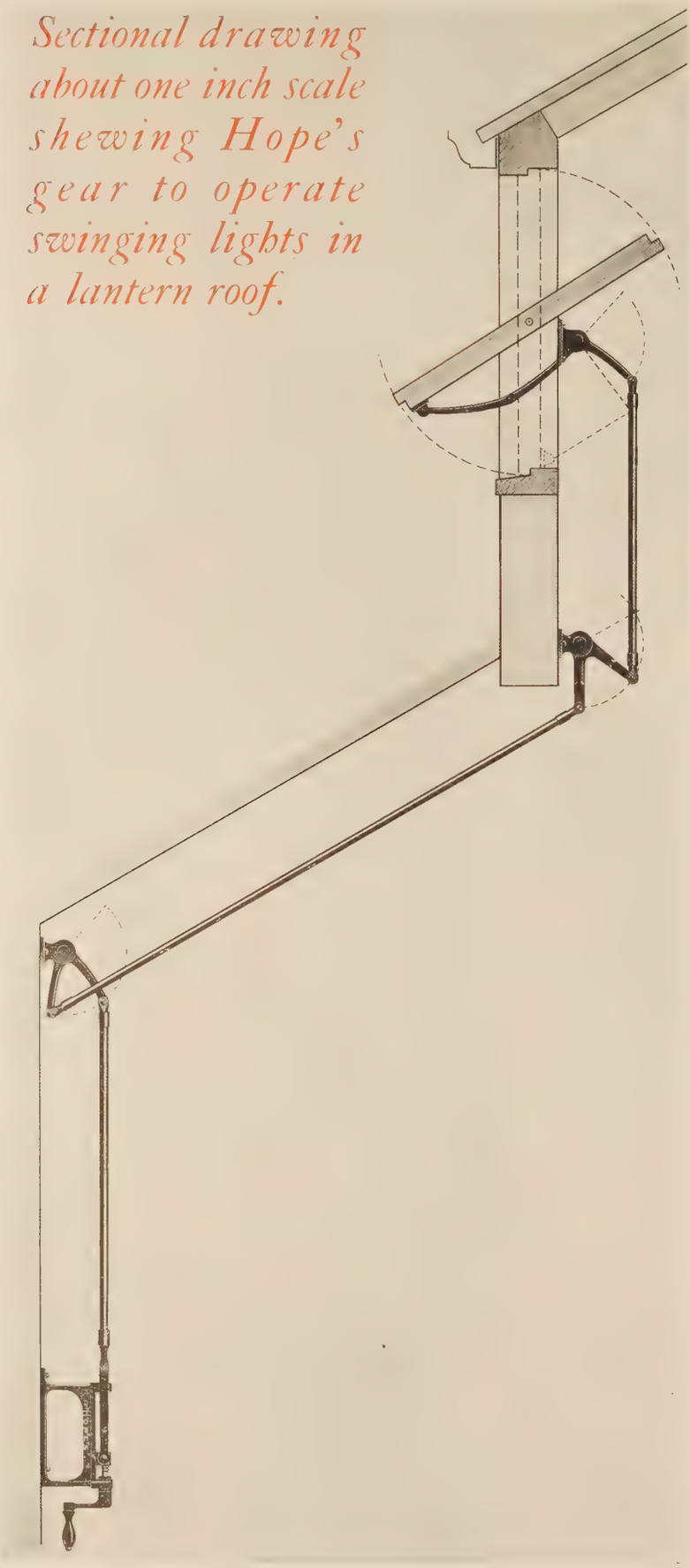
Heavier types are made for lantern lights, etc., and drawings and special quotations will always be supplied upon application. A competent representative will also attend when necessary to take particulars and advise upon the gear required.

Prices are for vertical rods up to 5 feet long and for gear of suitable strength for fanlights not exceeding 2ft. 6in. square.

N.B.—Elevation of windows to scale & full size details should accompany an order.

HOPE'S
LANTERN LIGHT GEAR

Sectional drawing about one inch scale shewing Hope's gear to operate swinging lights in a lantern roof.



This type of gear is specially adapted for long ranges of lights at any height, in swimming baths, power stations, conservatories and winter gardens, factories, etc.

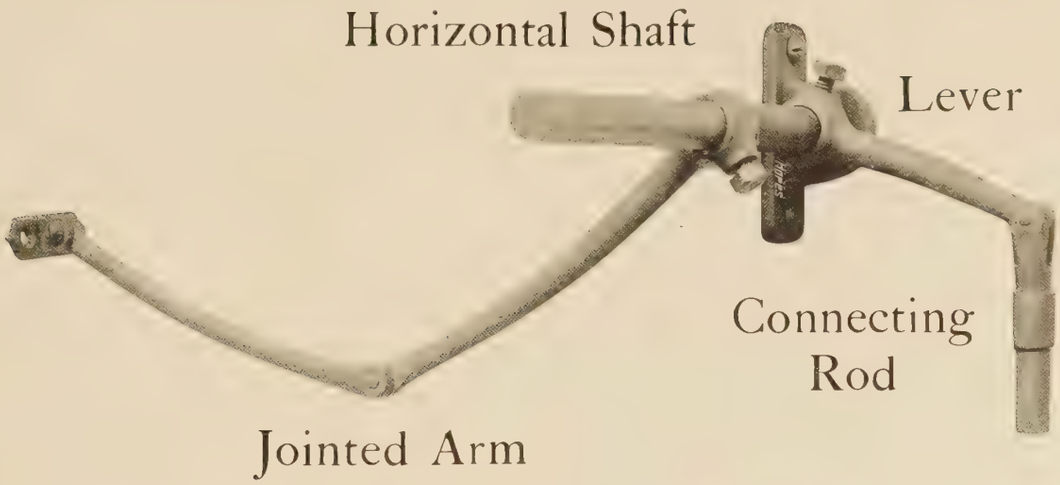
It is not possible to make a comprehensive price list of gear of this description, as the conditions vary so greatly for different buildings.

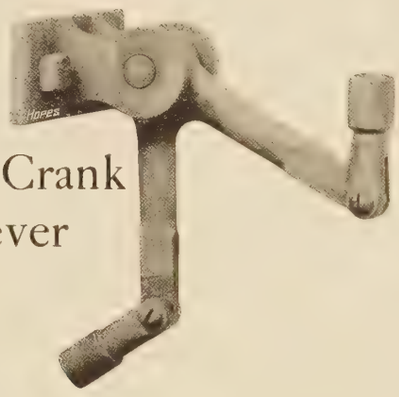
We shall always be pleased to give full detail drawings and estimates upon receipt of enquiry, and will send one of our staff to take particulars and to advise upon suitable gear when desired to do so.

We have a very wide range of patterns, and can supply gear in any of these, either in plain painted iron for buildings where a high finish is not required, or in polished gun metal for banks, offices, etc., where neatness and fine finish are of importance.

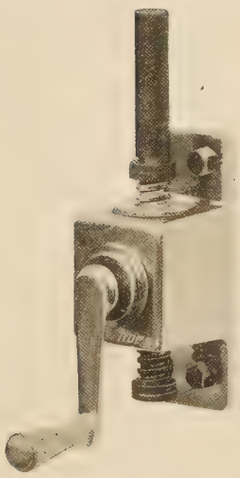
TRADE MARK
HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

DETAILS OF FITTINGS USED IN HOPE'S GEAR





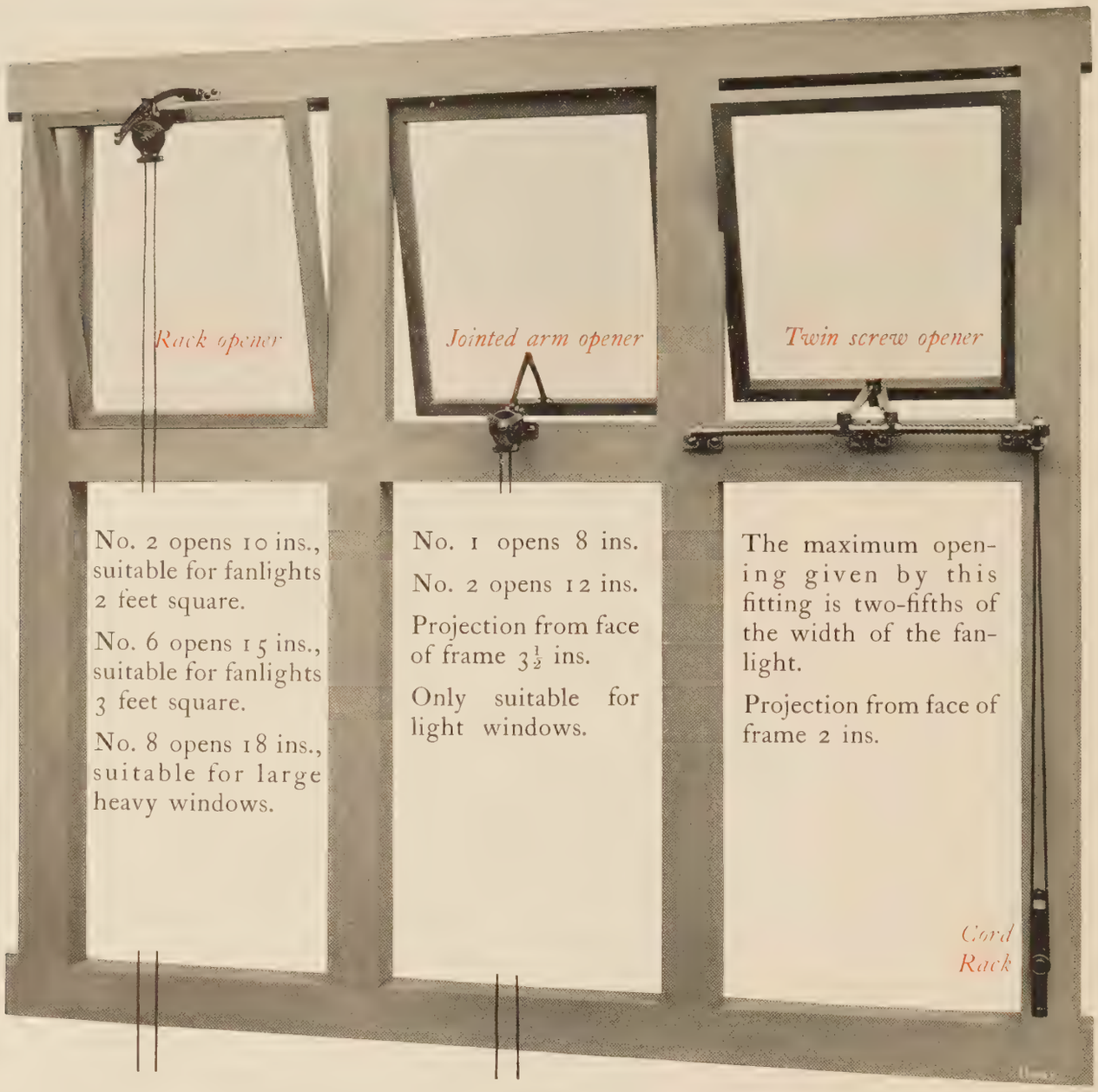
ILLUSTRATIONS ABOUT ONE QUARTER FULL SIZE



HOPE'S
Screw Bracket
for strong heavy gearing as on page 64. Made in various sizes and shapes to suit all positions.

HOPE'S
Silent Gun Metal Screw Box or Regulator
for light gear, as shewn on pages 62 and 63 (machine cut bevel wheels and screw).

HOPE'S CORD GEAR


Rack opener
Jointed arm opener
Twin screw opener
No. 2 opens 10 ins., suitable for fanlights 2 feet square.
No. 6 opens 15 ins., suitable for fanlights 3 feet square.
No. 8 opens 18 ins., suitable for large heavy windows.
No. 1 opens 8 ins.
No. 2 opens 12 ins.
Projection from face of frame 3½ ins.
Only suitable for light windows.
The maximum opening given by this fitting is two-fifths of the width of the fanlight.
Projection from face of frame 2 ins.
Cord Rack

HOPE'S RACK OPENERS

Are made to open fanlights hung at top or at bottom, to open outwards or inwards, and are always locked when open or closed.

No. 2, Iron 2/9 each. Gun metal 3/9 each.
No. 6, Iron 3/9 each. Gun metal 5/9 each.
No. 8, Iron 7/6 each. Gun metal 16/3 each.

HOPE'S JOINTED ARM OPENER

Is suitable for light windows hung at top to open outwards or pivot hung. No. 1, 6/- each; No. 2, 9/- each. Made in gun metal only.

HOPE'S TWIN SCREW OPENER

Is only recommended for single lights. It is very useful where a graduated and positive opening is desired with a very small projection inside. Can be adapted for fanlights hung at bottom or at top or to swing.

Up to 15 inches 20/- each. Extra per inch 1/-. Made in gun metal only.
CORD RACK 2/- each.

N.B.—Elevation of windows to scale & full size details should accompany an order.

HOPE'S STEEL SASHES

JOHN MITCHELL'S PEN WORKS, BIRMINGHAM Mansell & Mansell, Architects

This building is a good example of the application of Hope's steel windows to a first class modern factory.

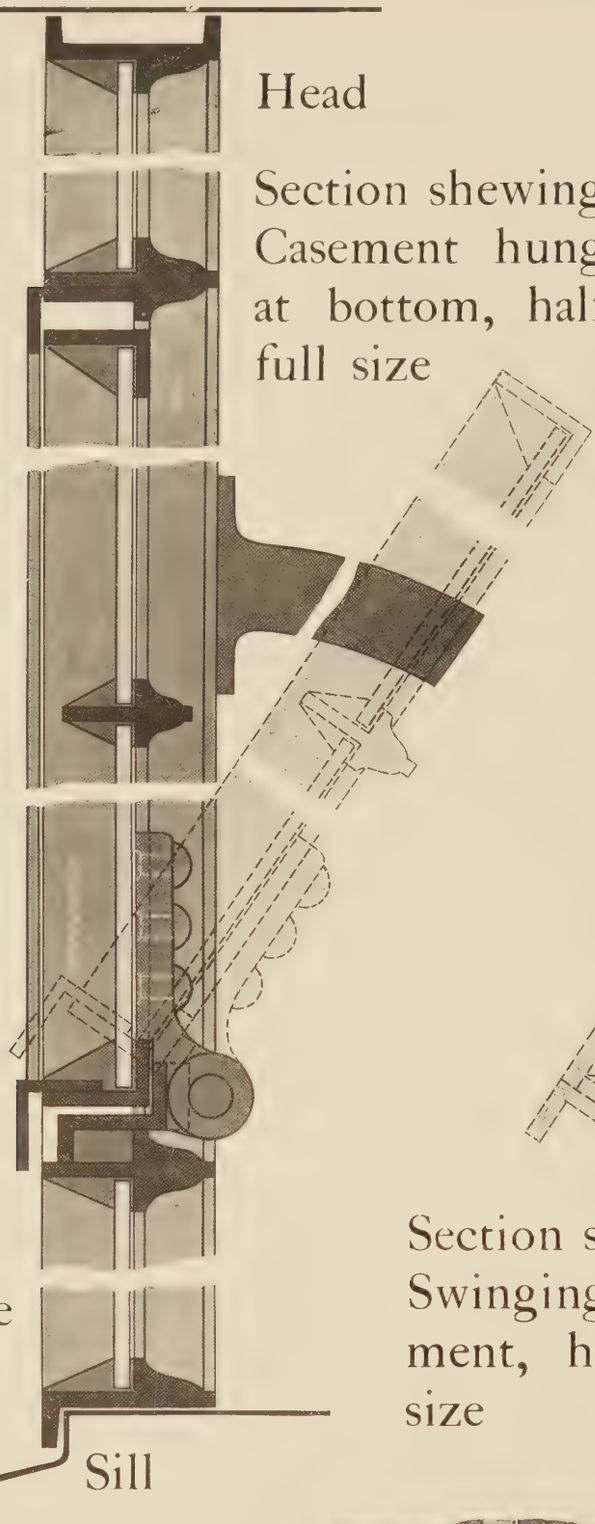
On the following pages, 68 to 79, will be found full details of the various sections we employ and specifications of manufacture.

HOPE'S STEEL WINDOWS are superior to wooden or cast iron windows for any class of building. They are light, strong and durable, and the price is extremely moderate.

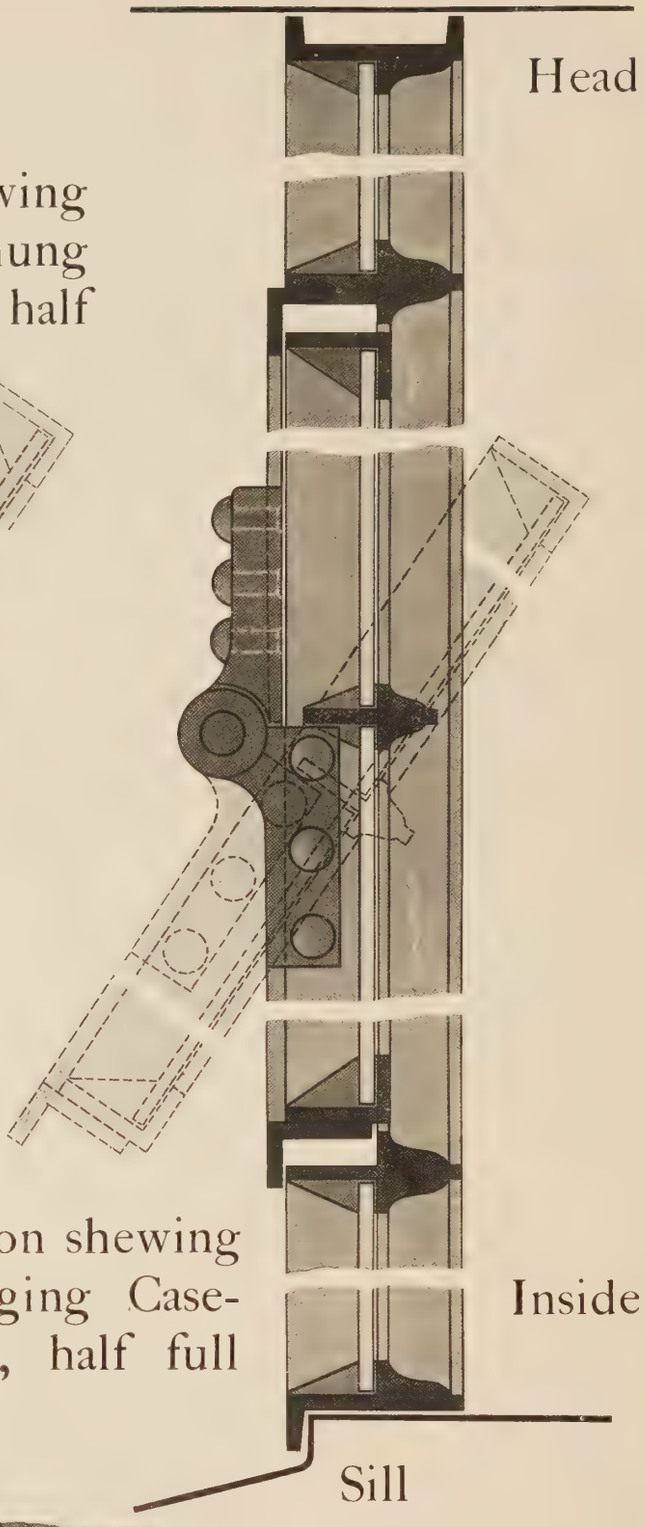
We have an unrivalled plant for rapid production, and the great variety of windows we have standardised enable us to supply buildings of any magnitude without delay.

N.B.—Our windows are entirely *machine made*. We will always forward samples upon request, and we wish it to be clearly understood that our samples are fair specimens of the bulk of our work.

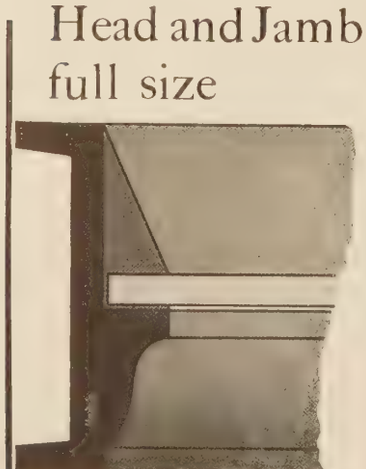
2IN. SECTION STEEL WINDOWS



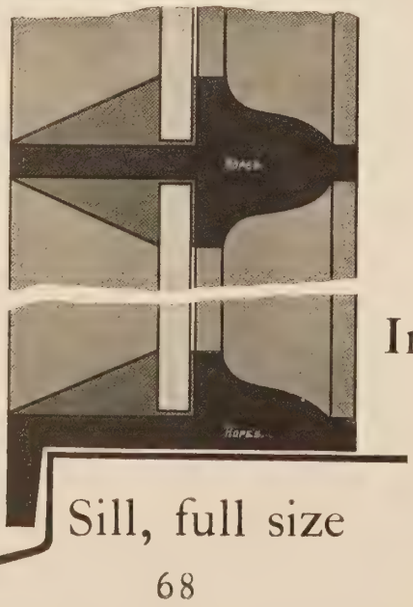
Section shewing Casement hung at bottom, half full size



Section shewing Swinging Casement, half full size

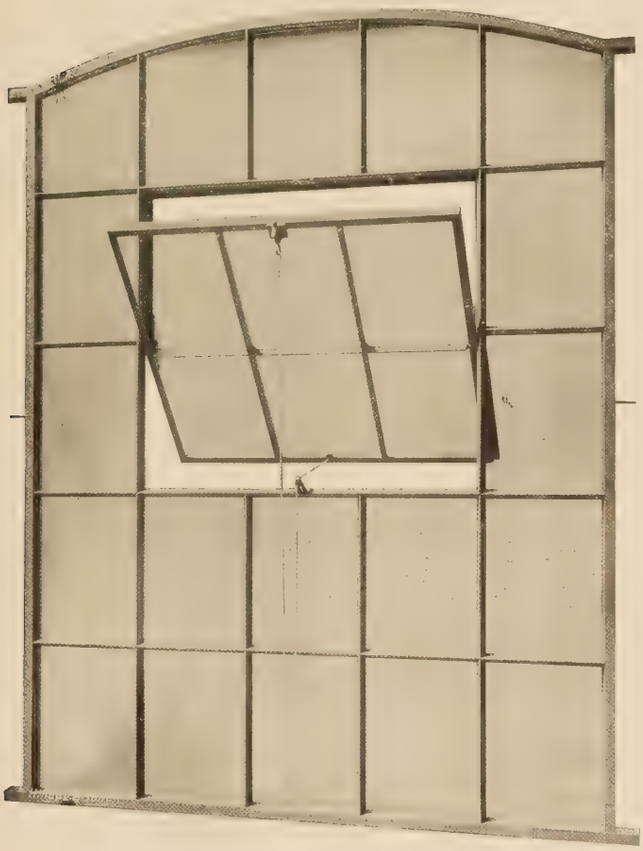


Head and Jamb full size



TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM·

HOPE'S 2IN. STEEL WINDOWS



SPECIFICATION

All the bars are of solid rolled English mild steel.

Horns are provided on the corners for building into brickwork, and intermediate lugs on the sides.

All joints are cut on milling machines, and put together without any manipulation by hand labour other than rivetting up.

The bars are painted before rivetting, and the finished windows painted two coats before delivery.

Photograph of window, about 8ft. × 6ft., giving panes about 2ft. area; shewing casement hung on pivots, and fitted with spring catch, with cord eyes and pulley.

The 2-inch Sections as shewn on the opposite page are recommended for windows up to about 9ft. high by 7ft. wide. The double ribbed outer bar has been specially designed to give extra strength to the frames, and at the same time to make a perfect joint with the brickwork, without the use of rebated or grooved bricks. The joint is easily made by flushing the mortar or cement between the brick and the window as each course is laid.

The single flange section is recommended for the bottom rail.

Details on opposite page shew the rebates for glazing on the OUTSIDE, but sashes can be made of the same sections to glaze from INSIDE if preferred.

Opening casements are fitted in such a manner as to give the necessary extra strength to the frames, no portion of the mouldings being cut away.

The pivots and plates on which they are hung are made of steel, lathe-turned and bored, and all spring bolts, pulleys, etc., are made of the best gun metal.

APPROXIMATE PRICES

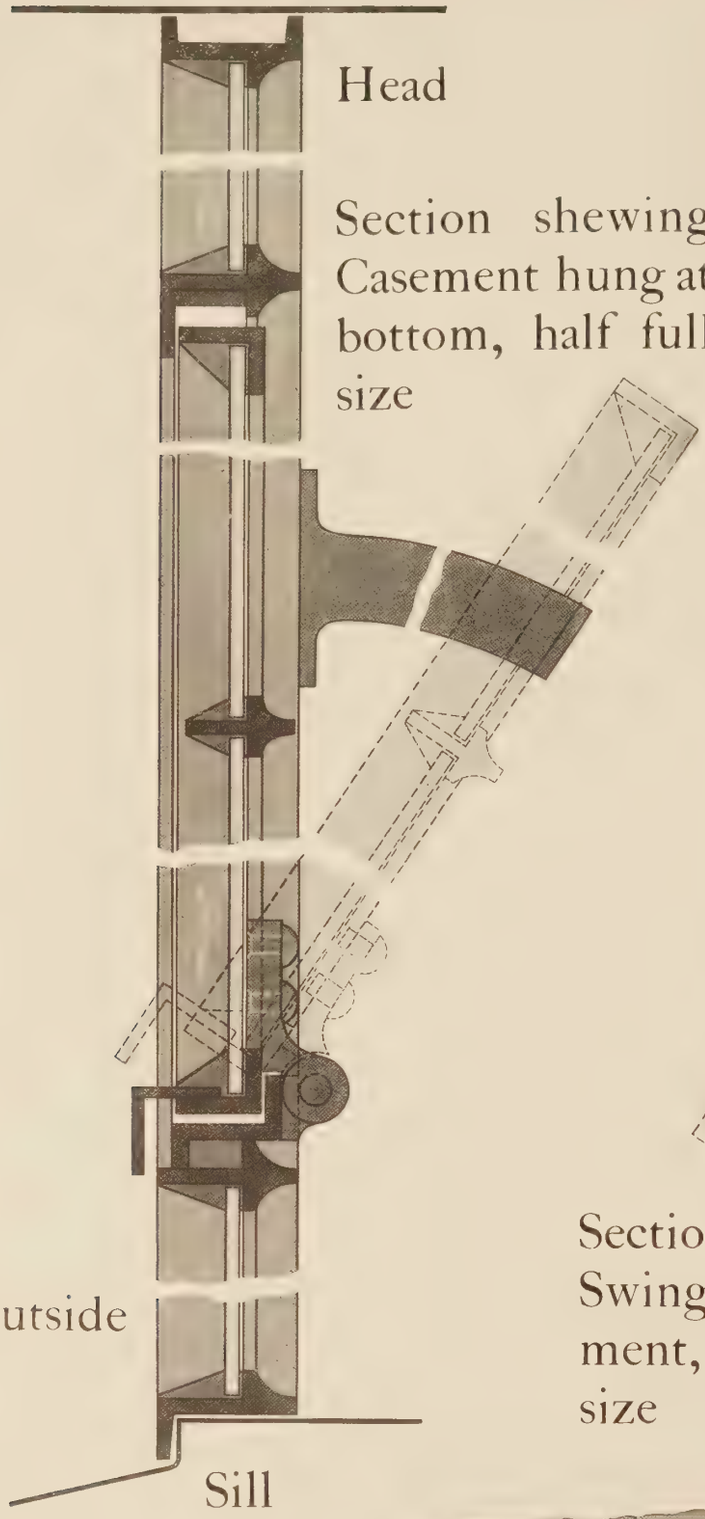
Area of sash about 54 feet super.	Panes about 3 feet area	10d. per foot	Extra for Casements hung at bottom and fitted with Spring Catch and Side Stops 15/- each	Extra for Swinging Casements fitted with Spring Catches and Eyes and Pulley 16/- each	Extra for Hopper Cheeks to Casements hung at bottom 7/- pair
	Panes about 2½ feet area	1/- per foot			
	Panes about 2 feet area	1/1 per foot			

NOTE.—For details of other 2-inch sections, with flanges suitable for glazing INSIDE, see page 79.

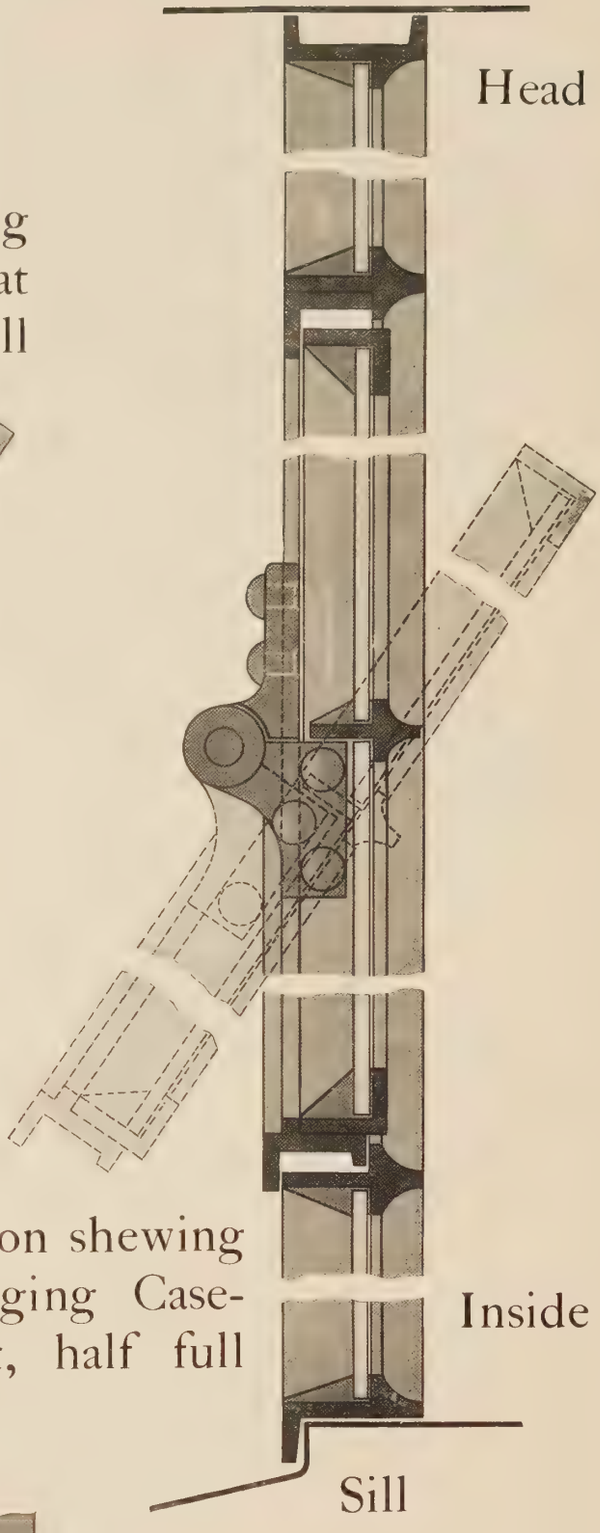
For details of Hope's WELDED windows, see page 78.

Special quotations will always be given upon receipt of specification.

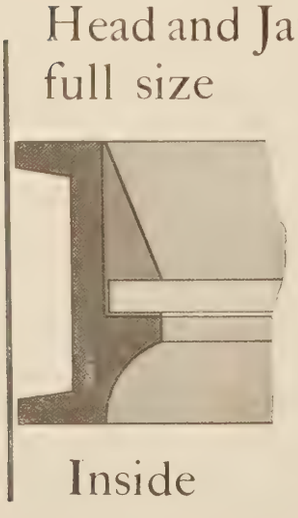
$1\frac{5}{8}$ IN. SECTION STEEL WINDOWS



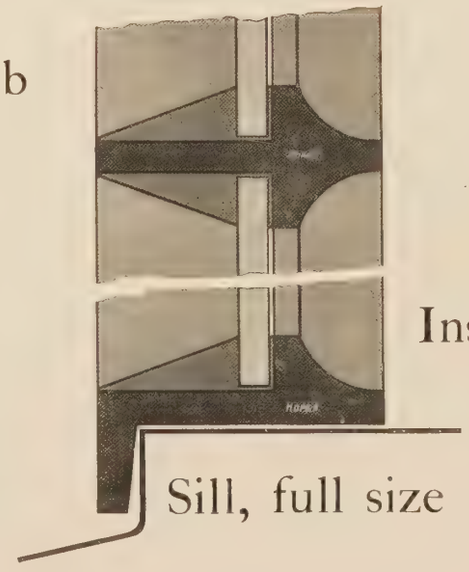
Section shewing Casement hung at bottom, half full size



Section shewing Swinging Casement, half full size

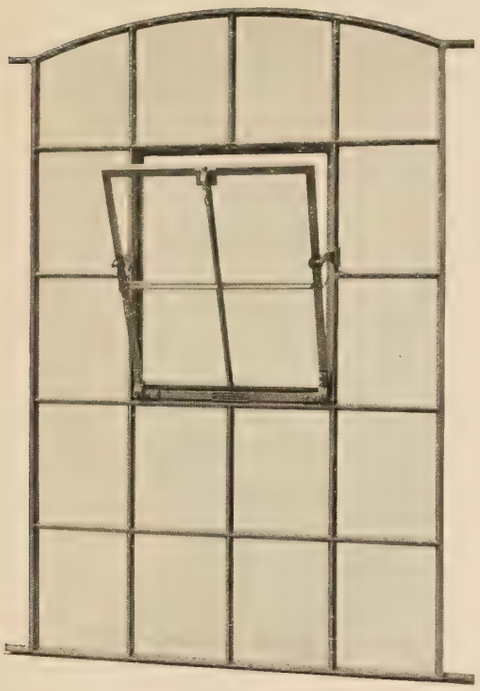


Head and Jamb full size



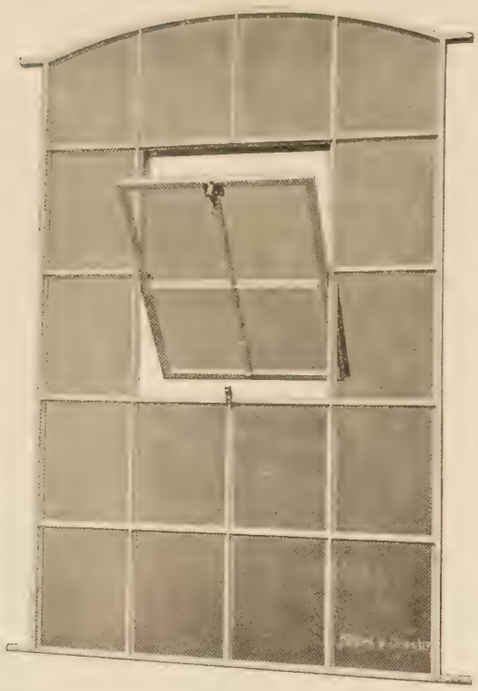
TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM·

HOPE'S 1⅝ IN. STEEL WINDOWS



Sash with casement hung at bottom, & fitted with spring catch & side stops.

Photographs of Windows about 7 ft. x 4 ft. giving panes about 1 ½ feet area.



Sash with casement hung on pivots, & fitted with spring catch and cord eyes and pulley.

SPECIFICATION

All the bars are of solid rolled English mild steel. Horns are provided on the corners for building into brickwork, and intermediate lugs on the sides. All joints are cut on milling machines, and put together without any manipulation by hand labour other than rivetting up. The bars are painted before rivetting, and the finished windows painted two coats before delivery.

The 1⅝ inch Sections as shewn on the opposite page are recommended for windows up to 7ft. 6in. high by 5ft. wide. The double-ribbed outer bar has been specially designed to give extra strength to the frames, and at the same time to make a perfect joint with the brickwork, without the use of rebated or grooved bricks. The joint is easily made by flushing mortar or cement between the brick and the window as each course is laid.

The single flange section is recommended for the bottom rail.

Details on opposite page shew the rebates for glazing on the OUTSIDE, but sashes can be made of the same sections to glaze from INSIDE if preferred.

Opening casements are fitted in such a manner as to give the necessary extra strength to the frames, no portions of the mouldings being cut away.

The pivots and plates on which they are hung are made of steel, lathe-turned and bored, and all spring bolts, pulleys, etc., are made of the best gun metal.

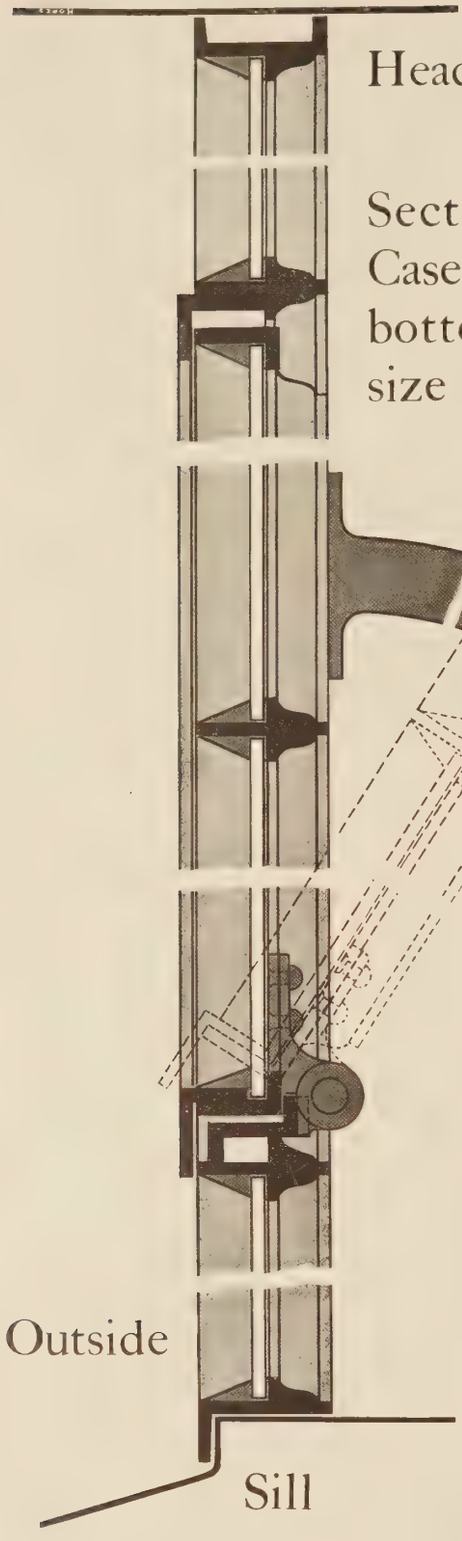
APPROXIMATE PRICES

Area of sash about 35 feet super.	Panes about 2 ½ feet area	6d. per foot	Extra for Casements hung at bottom and fitted with Spring Catch and Side Stops 13/6 each	Extra for Swinging Casements fitted with Spring Catches and Eyes and Pulley 14/- each	Extra for Hopper Cheeks to Casements hung at bottom 6/- pair
	Panes about 2 feet area	9d. per foot			
	Panes about 1 ½ feet area	10d. per foot			

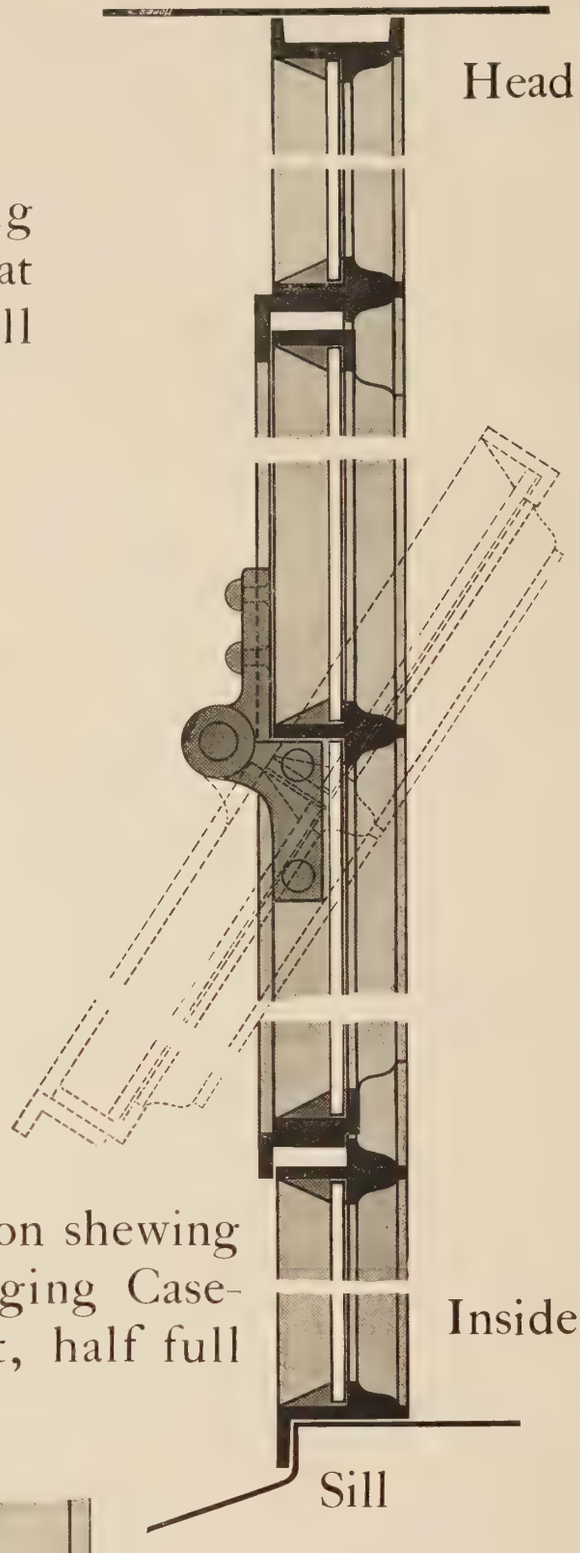
NOTE.—For details of Sections with flanges for glazing INSIDE, see page 79.
For details of Hope's WELDED Windows, see page 78.

Special quotations will always be given upon receipt of specification.

1½ IN. SECTION STEEL WINDOWS



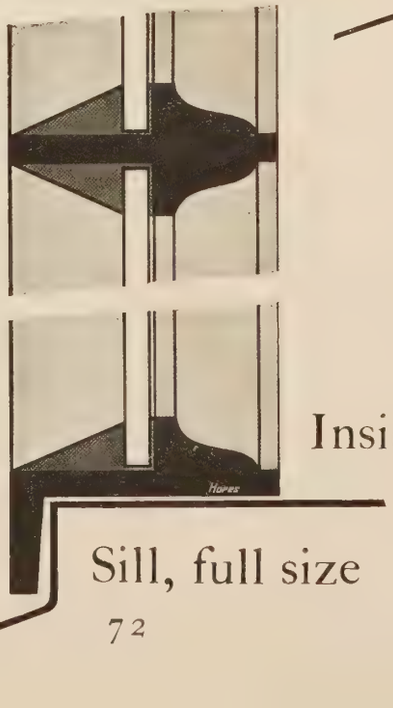
Section shewing Casement hung at bottom, half full size



Section shewing Swinging Casement, half full size

Head and Jamb full size

Inside

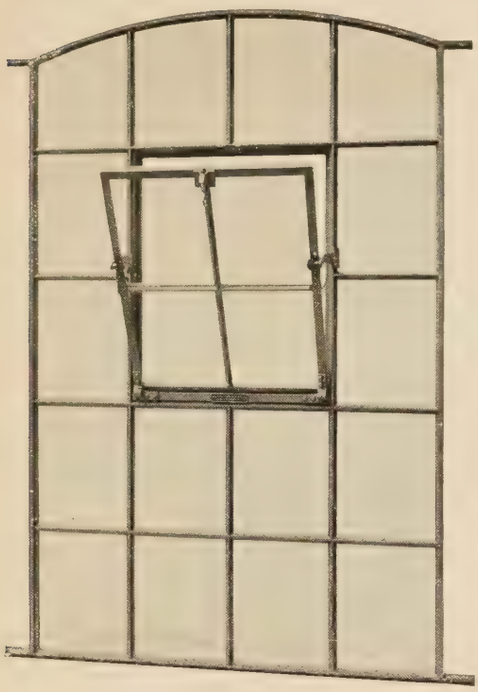


Inside

Sill, full size

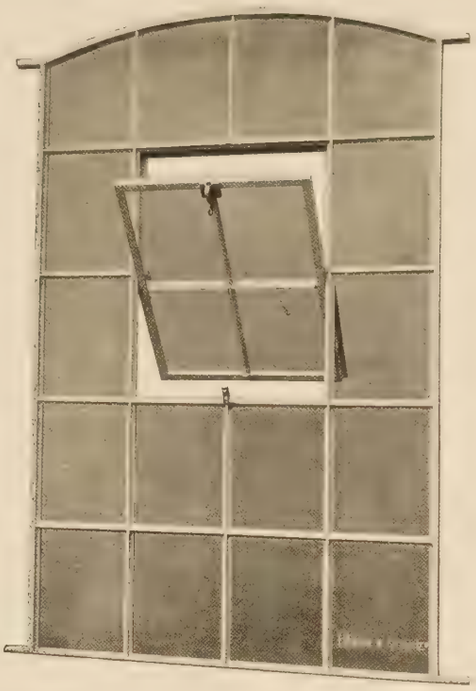
TRADE MARK
HENRY·HOPE AND SONS·LIMITED BIRMINGHAM

HOPE'S 1½ IN. STEEL WINDOWS



Sash with casement hung at bottom, & fitted with spring catch & side stops.

Photographs of Windows about 7 ft. x 4 ft. giving panes about 1 ½ feet area.



Sash with casement hung on pivots, & fitted with spring catch and cord eyes and pulley.

SPECIFICATION

All the bars are of solid rolled English mild steel. Horns are provided on the corners for building into brickwork. All joints are cut on milling machines, and put together without any manipulation by hand labour other than rivetting up. The bars are painted before rivetting, and the finished windows painted two coats before delivery.

The 1½ inch Sections as shewn on the opposite page are recommended for windows up to 7ft. high by 4ft. wide. The double-ribbed outer bar has been specially designed to give extra strength to the frames, and at the same time to make a perfect joint with the brickwork, without the use of rebated or grooved bricks. The joint is easily made by flushing mortar or cement between the brick and the window as each course is laid.

The single flange section is recommended for the bottom rail.

Details on opposite page shew the rebates for glazing on the OUTSIDE, but sashes can be made of the same sections to glaze from INSIDE if preferred.

Opening casements are fitted in such a manner as to give the necessary extra strength to the frames, no portions of the mouldings being cut away.

The pivots and plates on which they are hung are made of steel, lathe-turned and bored, and all spring bolts, pulleys, etc., are made of the best gun metal.

APPROXIMATE PRICES

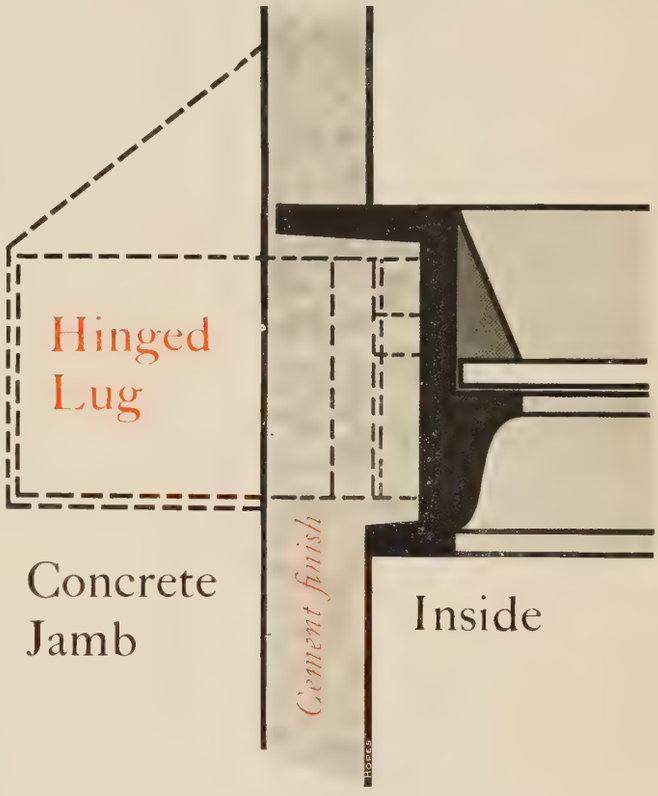
Area of sash about 28 feet super.	Panes about 2 feet area	7d. per foot	Extra for Casements hung at bottom and fitted with Spring Catch and Side Stops 12/- each	Extra for Swinging Casements with Eyes and Pulley 11/- each Spring Catch 1/6 extra	Extra for Hopper Cheeks to Casements hung at bottom 6/- pair
	Panes about 1½ feet area	8d. per foot			

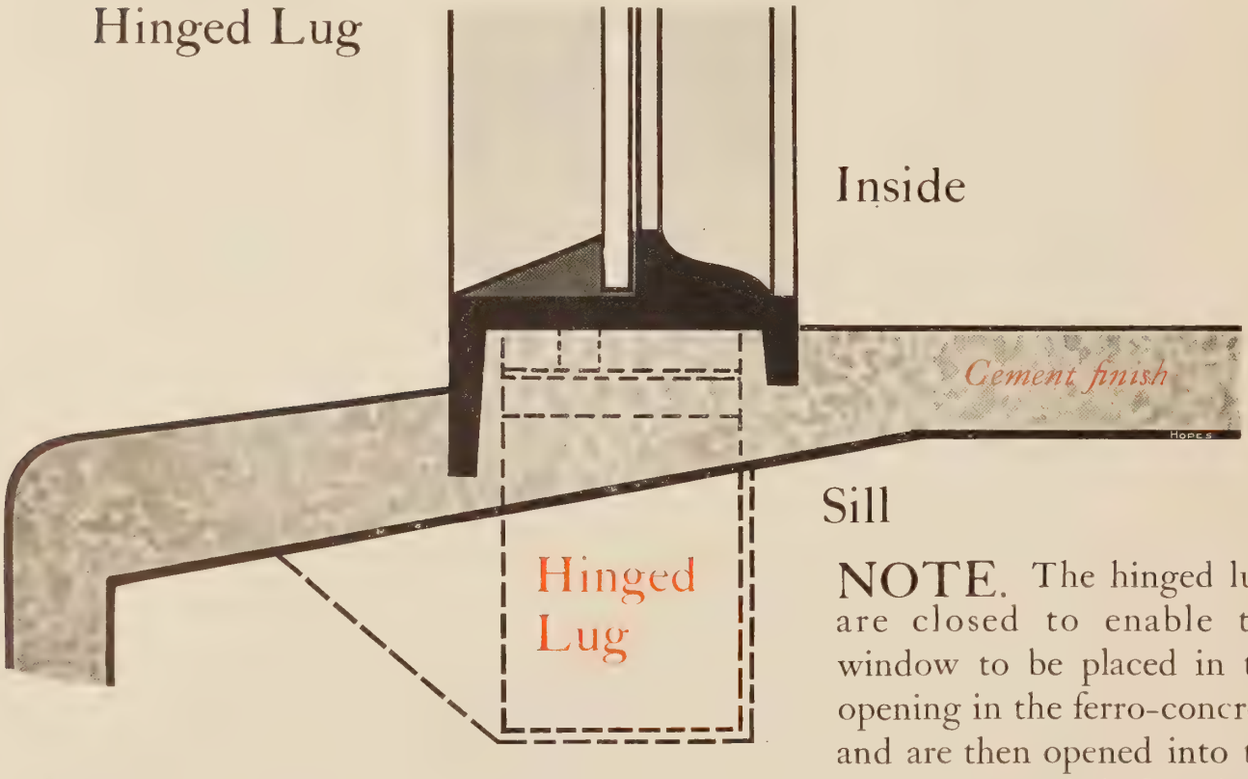
NOTE.—For details of Sections with flanges for glazing INSIDE, see page 79.
For details of Hope's WELDED Windows, see page 78.

Special quotations will always be given upon receipt of specification.

HOPE'S STEEL WINDOWS *for* FERRO-CONCRETE CONSTRUCTION

View of
Hinged Lug



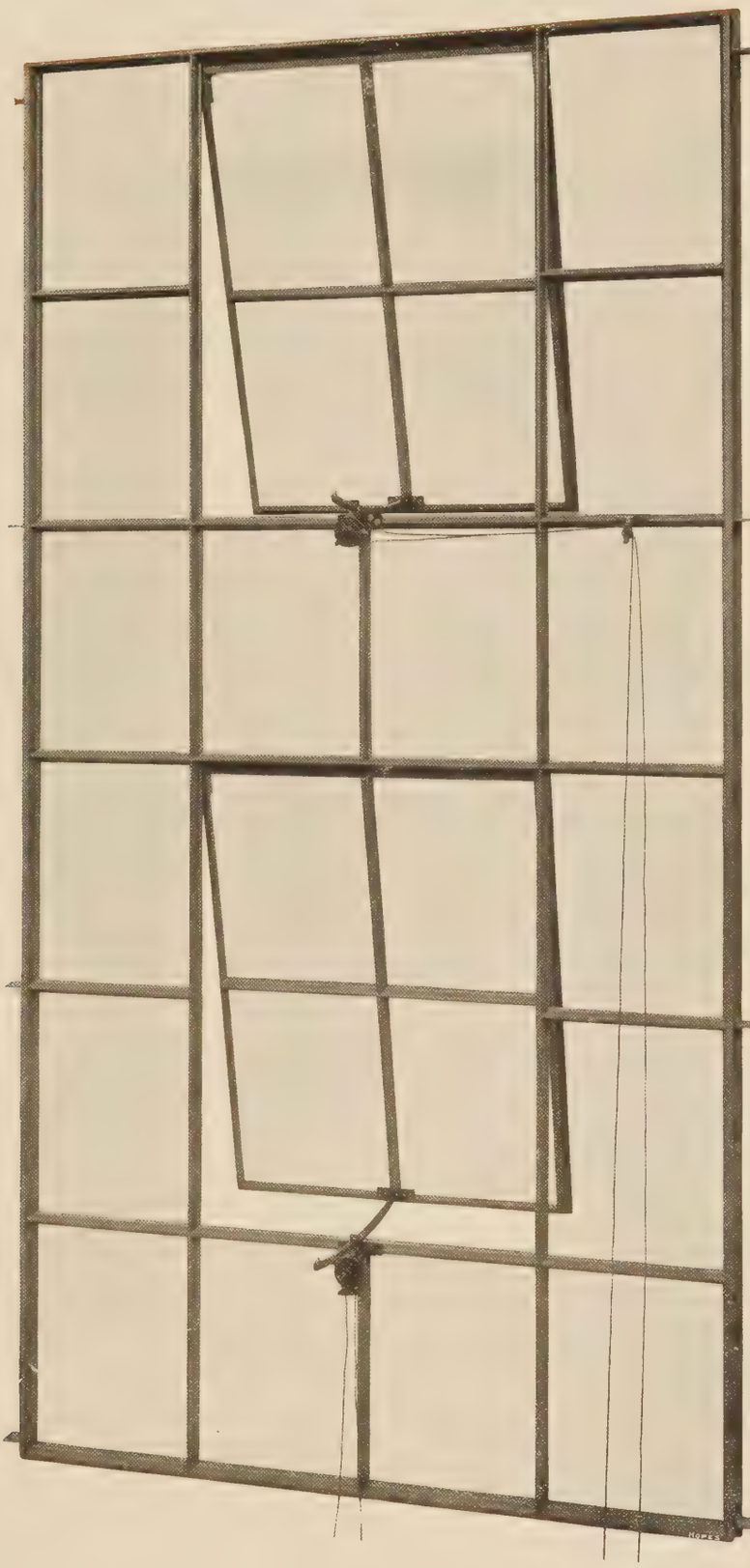


DETAILS FULL SIZE

NOTE. The hinged lugs are closed to enable the window to be placed in the opening in the ferro-concrete and are then opened into the recesses provided for them. These recesses are then filled and the cement finish laid on.

HOPE'S STEEL WINDOWS FOR FERRO-CONCRETE

As supplied to the New General Post Office, London.



This photograph shews the special hinged lugs opened as they would be after the window has been placed in the ferro-concrete opening.

NOTE. The details on the opposite page shew our 2in. section, but these windows can be supplied in *any of our sections* with ventilating casements of any form. *Estimates and details upon receipt of enquiry.*

HOPE'S SASHES
WITH SIDE HUNG CASEMENTS AS FIRE EXITS

Photograph of sash, shewing casement for exit in case of fire in addition to the ordinary ventilating casement, as required by the regulations of the London County Council. The form of this casement may be varied, if required, either to hang on vertical pivots in the manner of our "cleaning casement," or to open inwards.

PRICES

Side hung casements opening outwards, 20/- each.
Ditto, opening inwards, 25/- each.
Casements hung on vertical pivots, 35/- each.

HOPE'S STEEL POLICE CELL WINDOWS

Our cell windows have the ventilators placed on the inside of the steel sash bars, which are solid throughout, and although light, and of neat appearance, they are INDESTRUCTIBLE.
In use in modern police stations and prisons and for Government stores for H.M. War Office.

The illustration shews a window of 1⅜ in. section, 1ft. 6in. high to crown by 2ft. 6in. wide, in 10 panes. Estimates for other sizes upon application.

SIZES		Number of panes	Prices of fixed windows		Extra for hopper ventilators
Height	Width		1⅜ in. section	2in. section.	
1ft. 6in.	2ft. 6in.	10	10/-	13/-	18/- each
1ft. 6in.	3ft. 6in.	14	12/-	16/-	
2ft. 3in.	3ft. 6in.	21	14/-	19/-	

Ventilators can be made with front to hinge at bottom to open inwards instead of top to lift up as illustrated at an extra cost of 5/- each.

POWER STATION WINDOWS AND GEAR

GREENWICH GENERATING STATION for the London County Council.

This window is 39ft. high by 48ft. wide, and each of the three bays is constructed of steel throughout. The louvres are each 3ft. high by 6ft. wide, and the whole 24 louvres in the centre division and the 14 in each of the side divisions of the window are operated by a single set of Hope's screw opening gear.

Detail drawings and estimates upon application.

NOTE.—Hope's "power station" steel windows are light, strong and easily operated.

WELDING *applied to* HOPE'S METAL WINDOWS

It is now nearly three years since we commenced making experiments in welding by the oxy-acetylene process, and as these experiments have shewn that welding has certain advantages for some forms of metal window construction, we have put down a special plant and have adopted welding in our factories.

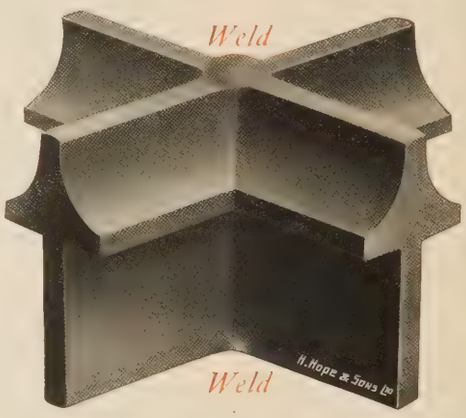
In view, however, of the statements which have been circulated as to the universal application of welding for casement construction, we think it proper to state that we have conclusively proved that while it has advantages for certain classes of simple joints, it is not suitable for work of the best character where great mechanical accuracy is desired. For this reason we retain our machine-cut, rivetted, brazed and sand-blasted joints for a great portion of our work.

As illustrating the work where our welding plant is used, we would mention our "Garden City" casement, our hospital windows, which have all the cross joints and the rounded angles welded solid, and also we would call particular attention to the welding of cross joints in sashes and casements at the intersections of the bars.

WELDED SASHES

We illustrate here one of our machine-cut mitre joints welded on both sides, thus tying the bars to each other and greatly strengthening the sash. We can always supply sashes made in this way, but otherwise exactly as described in detail on pages 67 to 76, at the small extra cost of—

For 2 inch section - - - 1½d. per square foot
For 1⅝ and 1½ inch section - 1d. per square foot



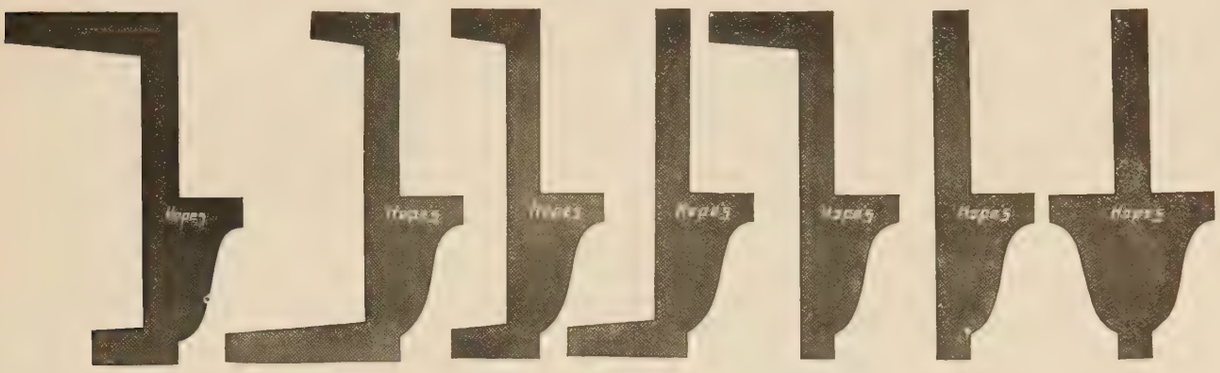
It only remains for us to state that we are constantly trying all such new methods of construction as appear likely to improve our product, and that we always use those methods which our experience teaches us to be the best for the particular work in hand.

NOTE. *We have taken the advice of some eminent metallurgists upon the question of welding and brazing, and we will be pleased to send a copy of a report by Prof. Turner of the Birmingham University to any of our customers to whom this will be of interest.*

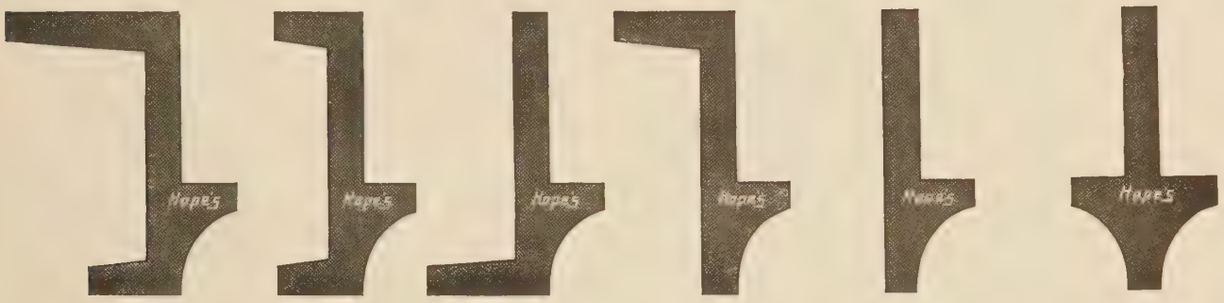
HOPE'S SASH SECTIONS

Always in stock

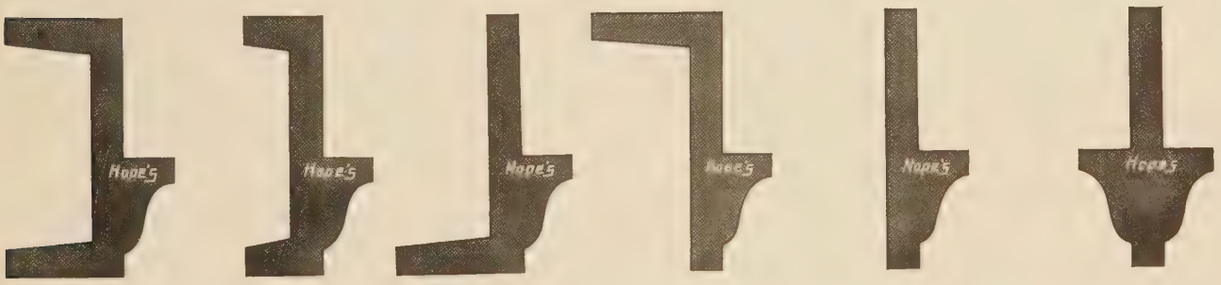
All cleanly rolled from rolls kept for our exclusive use



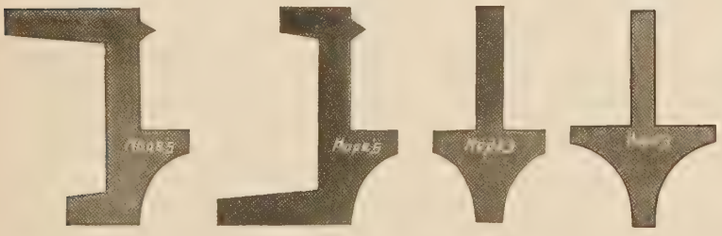
2 in. Sections



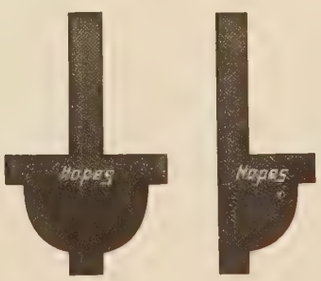
1 5/8 in. Sections



1 1/2 in. Sections



1 1/4 in. Sections

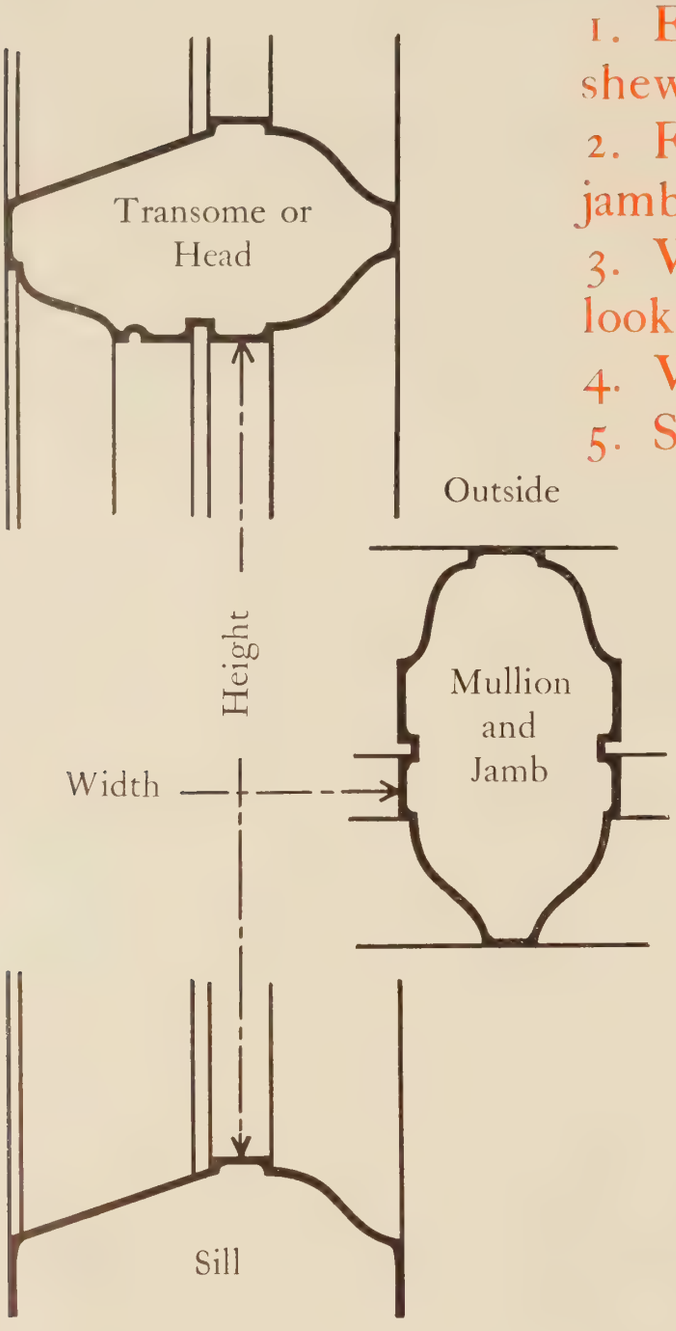


1 1/2 in. Ovolo Moulded Sections

We have also a large selection of ∟ and ⊥ sections for the construction of windows where *flat* surfaces are preferred.

THE FOLLOWING PARTICULARS SHOULD ACCOMPANY AN ORDER

1. Exact height and width as shewn on these details.
2. Full size sections of heads, jambs and sills.
3. Which hand to be hung, looking from INSIDE.
4. What glass to be used.
5. Sections and quality required.



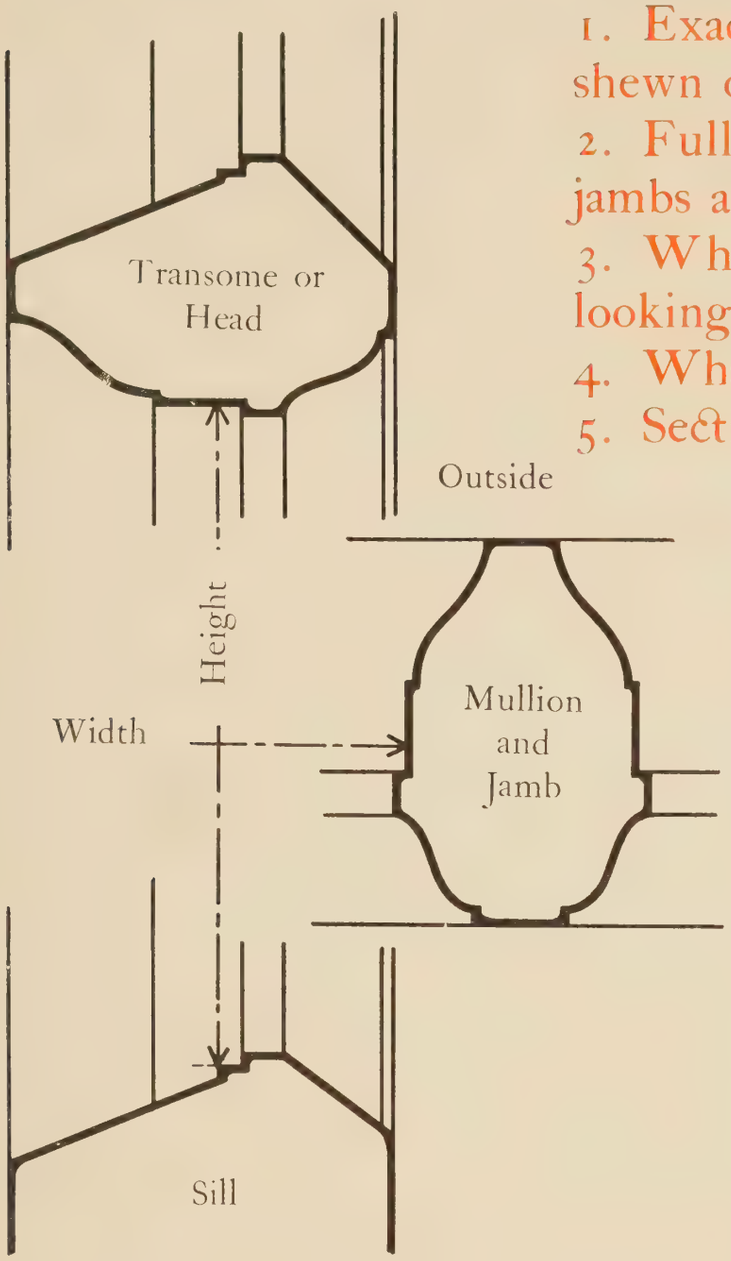
Detail quarter full size shewing how sizes should be taken in GROOVED work.

Internal view of a right-hand casement, *i.e.*, with the hinges on the right-hand side looking from the INSIDE.

HENRY HOPE & SONS LIMITED

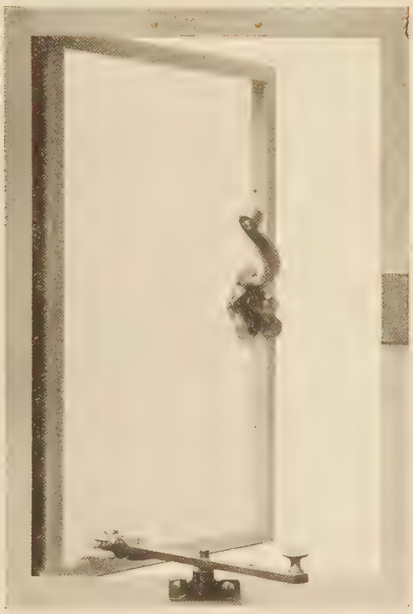
55 LIONEL STREET, BIRMINGHAM

THE FOLLOWING PARTICULARS SHOULD ACCOMPANY AN ORDER



1. Exact height and width as shewn on these details.
2. Full size sections of heads, jambs and sills.
3. Which hand to be hung, looking from INSIDE
4. What glass to be used.
5. Sections and quality required.

Detail quarter full size shewing how sizes should be taken in REBATED work.



Internal view of a left-hand casement.
N.B.—The "hand" of a casement is always that side on which the hinges are, looking from the INSIDE, whether the casement opens in or out.

HENRY HOPE & SONS LIMITED
55 LIONEL STREET, BIRMINGHAM

Instructions for Fixing Casements

I. Care must be taken to set the casement and frame quite square in the opening, and on no account must any force be used in putting it in. If the opening is not large enough, the stone or wood work must be eased so that the casement will go in easily.

II. In stone or terra-cotta, round holes should be carefully cut exactly opposite the holes in the steel frame. These holes should then be plugged with round lead plugs A of the right size.

III. The frame must be well bedded to the rebates with mastic.

IV. Carefully screw the frame to the lead plugs and take care not to distort or twist it in screwing up. Any distortion or twisting of the frame will shew itself by the imperfect fit of the casement when gently closed, and such distortion should be corrected by loosening the fixing screws, packing or wedging the frame to its correct position where necessary, and re-screwing up.

V. In wood frames, the above instructions hold good with the exception that lead plugs are not required.

Instructions for Glazing Casements

I. A quick, hard setting, stiff putty must always be used for metal windows. Ordinary glazier's putty must *not* be used, as this will never set hard on metal.

II. Before putting in glass take note that the casement opens and closes perfectly.

III. The glass must be bedded in the usual way and front puttied, but the putty should be left at least 14 days before painting so as to allow it time to set. If the front putty is painted before it is hard it will remain soft and is always liable to "run." Front putty should be kept as narrow as possible; a wide splay of putty increases the liability to "run" and makes a slovenly job.

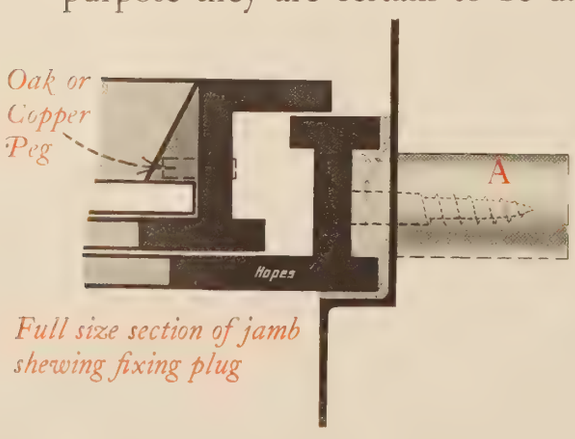
IV. In putting in glass it is always of the utmost importance to wedge it at the points C and D (the wedge C should be inserted first). This is necessary to prevent the casement sagging with the weight of the glass.

Glazing Fillets

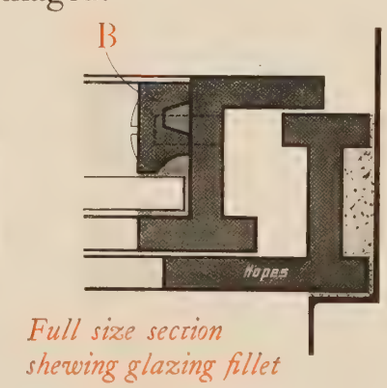
For casements glazed with single sheets of plate glass and for all large casements we strongly recommend our metal glazing fillets B, which make a much better looking and more substantial finish than the usual front putty. The price of these fillets is given in the price lists of each of our sections.

Warning

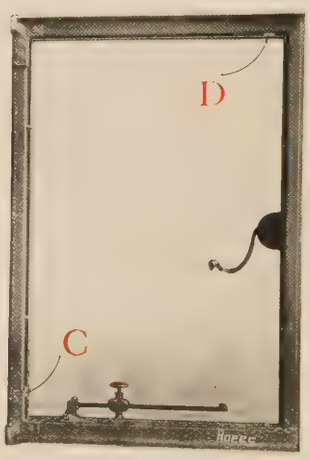
In no case should casements be fixed until the building is clear of the rougher trades. Where it is desirable to protect floors and plastering, canvas screens can be placed against the window frames at a very small cost. If casements and glazing are put in soon enough to effect this purpose they are certain to be damaged.



Full size section of jamb shewing fixing plug



Full size section shewing glazing fillet



Outside view of casement shewing correct position for wedges

LEADED LIGHTS

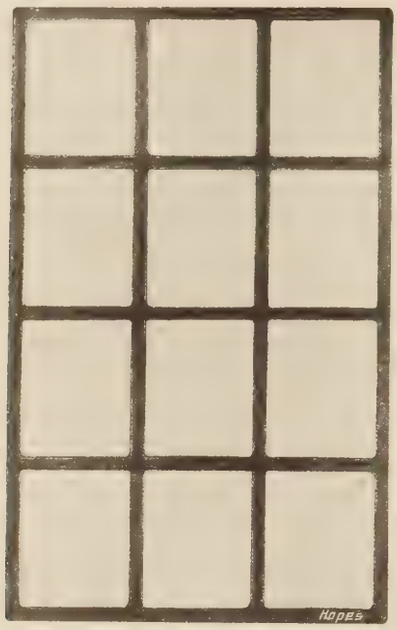
IT is scarcely necessary to point out to architects the advantage of leaded lights being produced in conjunction with the casements they are intended to fill. It insures undivided responsibility as to accuracy of sizes, positions of saddle bars, handle plates, etc. We only make leaded glazing of the best quality, all our work being carefully soldered and cemented on both sides. We have the best facilities, and manufacture our own lead cames in all sizes, and we would particularly emphasize the fact that it is not possible to produce honest work that will resist the weather at lower prices than those which we quote.

In the majority of windows where leaded lights are desirable, their architectural value is best satisfied by plain and perfectly proportioned sub-division. It is not easy to select the right size and proportion of panes which will harmonize with the whole building, externally and internally, but the knowledge and experience which we have acquired on this subject are always at the service of our customers.

TRADE MARK

HENRY·HOPE
AND
SONS·LIMITED
BIRMINGHAM·

HOPE'S LEADED LIGHTS



PRICES FOR PLAIN WORK

Plain squares in strong leads 21 oz. sheet glass, 1/1 per sq. ft.
ditto ditto unflattened crown, 1/9 „ „
ditto ditto patent plate - 2/- „ „

For diamond panes add 3d. per square foot.

Fixing leaded lights 4d. per square foot, including setting saddle bars and bedding and pointing in mastic.

When ordering, the width of lead cames should be specified.

Ornamental Work

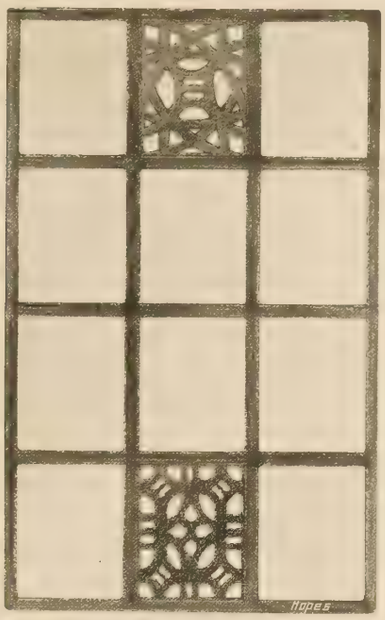
For positions where ornamental glazing is desirable, a small amount of concentrated pattern work, as shewn in designs 2 to 5 and 9 and 10, is often highly effective, while simple geometrical patterns such as 6, 7 and 8 in many cases may be used with success.

Colour may be used in any of the ornamental designs which we illustrate, and we are always pleased to submit colour schemes for all classes of stained and leaded glass, together with samples of the glass intended to be used. We have a large stock of beautiful antique glass, Norman slabs, etc., from delicate to rich deep tones, also a stock of genuine unflattened old English crown glass, old Dutch glass and other glass taken from old buildings.

In preparing designs it is of great assistance to us to have a rough copy of plans and elevations, or photographs of existing buildings, so that we may give a design in harmony with the situation.

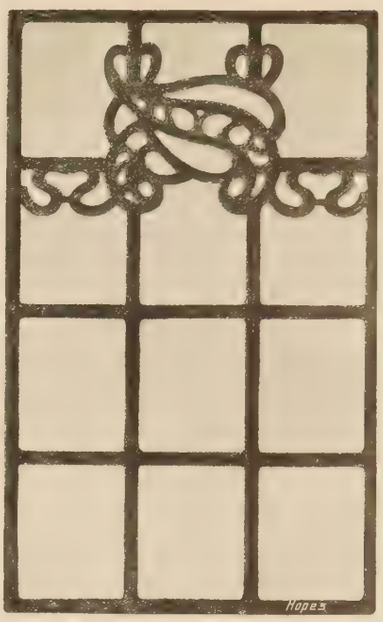
N.B.—The prices attached to each of the ornamental designs on pages 85 and 86 are for those carried out in plain 21oz. sheet glass. For higher quality or coloured glass, special quotations and samples will be given.

Henry Hope & Sons Limited



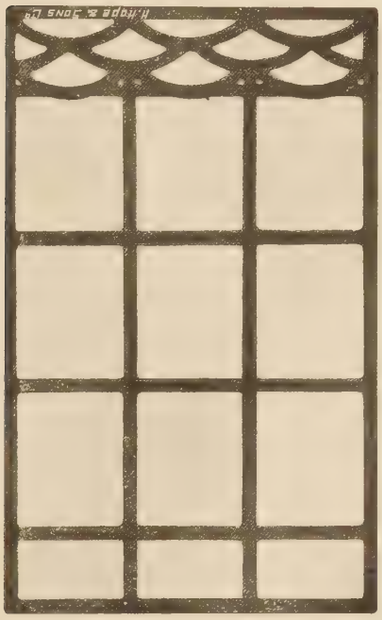
1

Ventilating lead panels 2/6 ea. panel



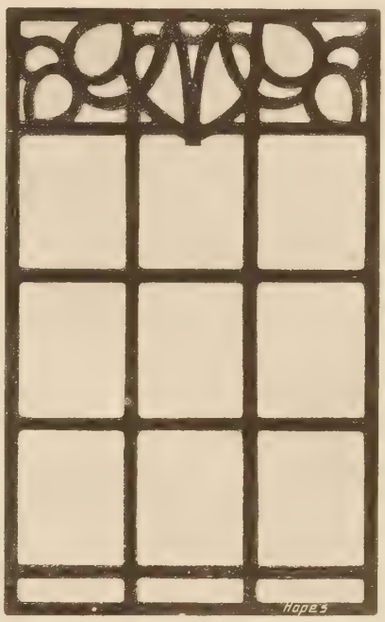
2

1/9 per sq. foot



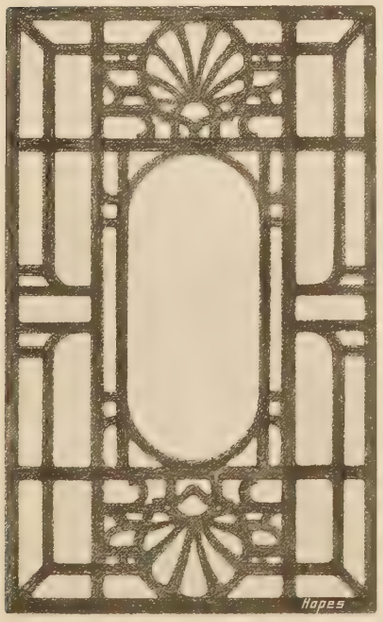
3

1/6 per sq. foot



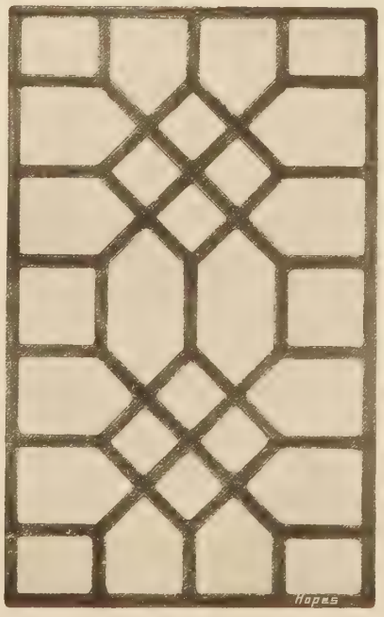
4

1/9 per sq. foot



5

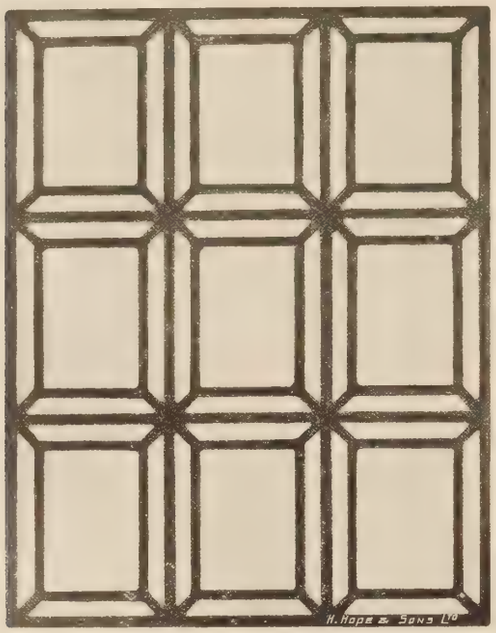
2/9 per sq. foot



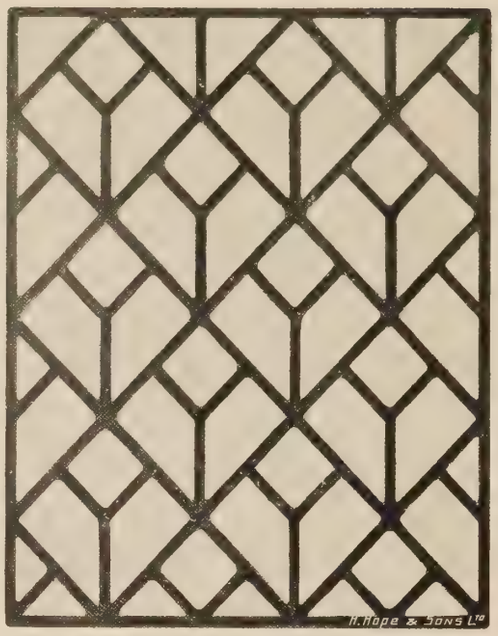
6

1/6 per sq. foot

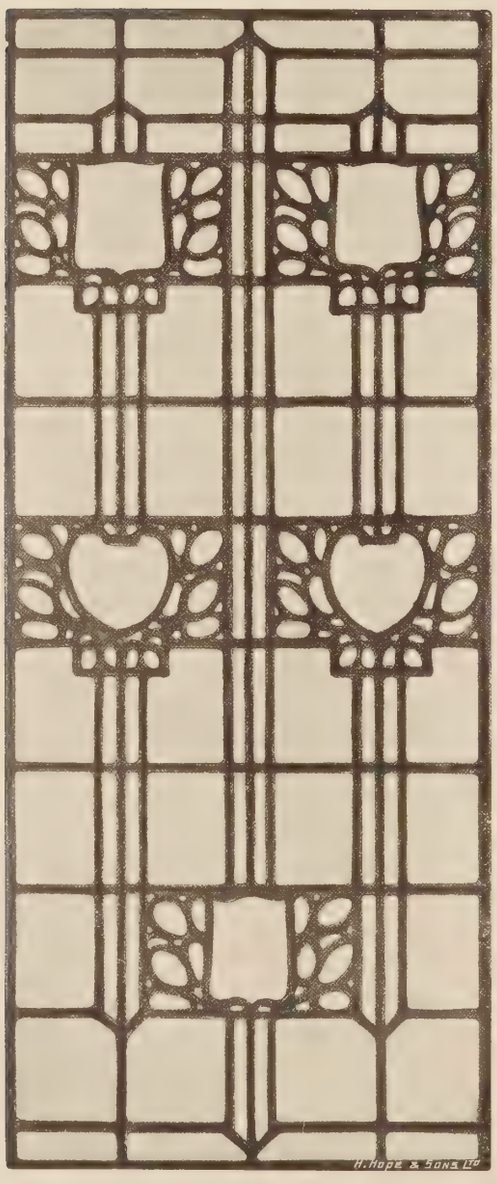
Henry Hope & Sons Limited



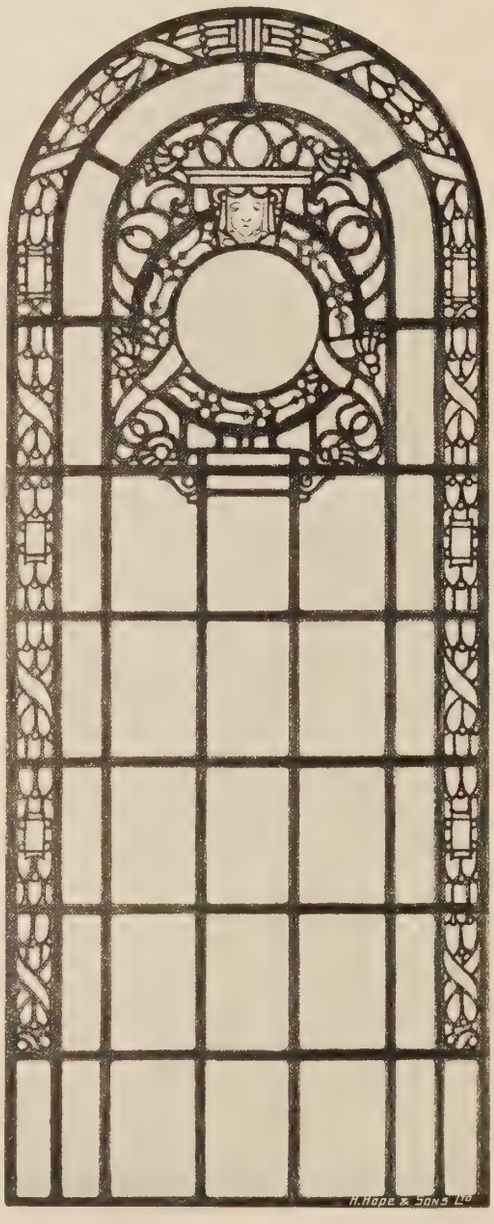
7 1/9 per sq. foot



8 1/9 per sq. foot



9 3/6 per sq. foot



10 7/6 per sq. foot

Henry Hope & Sons Limited

11

WINDOW IN NEW MUNICIPAL BUILDINGS
SOUTH SHIELDS Ernest E. Fetch, Architect

12

13

Prices of the above are dependent upon the quality of glass used. Quotations and samples upon application.

METAL WINDOWS FOR PUBLIC BUILDINGS.

The use of metal windows in English domestic architecture where mullioned windows are employed is now so general that our remarks are not so much directed to this class of building as to public architecture, comprising administrative and business buildings of all kinds where windows are necessarily large, and where it is generally admitted that their details should be subordinate to the main architectural design.

We have given close attention during recent years to the design and construction of metal windows of large size suitable for buildings of architectural importance. We maintain that these metal windows are superior in every respect to windows made of wood, and we offer the following photographs and details of various public buildings in which they have been used, as examples of their successful practical use.

A wooden sliding sash can only be opened in one way, and the operation of opening and closing is one of difficulty even when it is in good working order, while our metal windows can be so arranged that every room shall have casements opening in a variety of ways, so that the direction of the wind can be taken into account and ventilation obtained without discomfort. *They can be opened and closed without effort, and never stick or jam.*

Our windows so entirely satisfy the increasing demand for fire resistance and the maximum area of glazing that we do not hesitate to call them THE WINDOWS OF THE FUTURE. They are obviously the only possible windows for any kind of ferro-concrete construction, and have been proved in practice on account of their strength and appearance to be eminently suitable for buildings of this character.

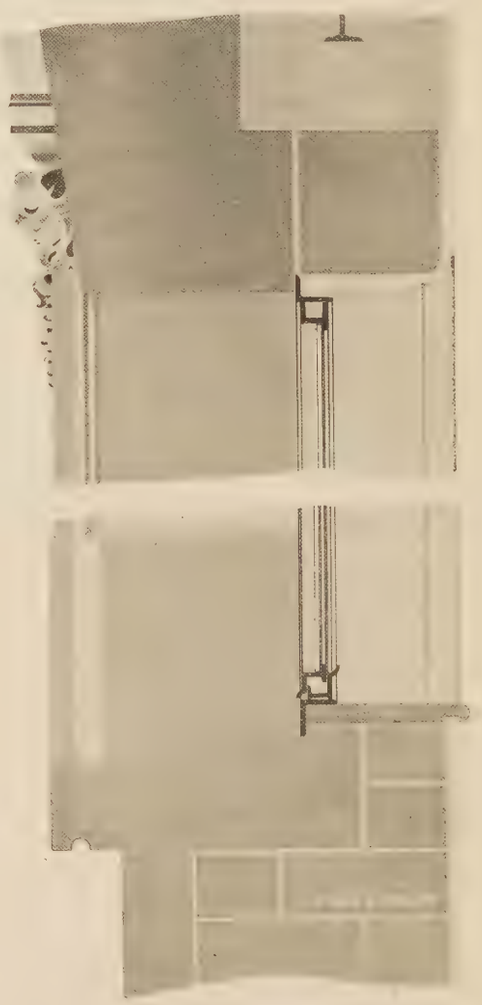
ASHTON MEMORIAL, LANCASTER — John Belcher, A.R.A., Architect

We illustrate in the following pages a few of the more important buildings which have been recently fitted with Hope's metal casements and windows, and in selecting these photographs we have endeavoured to illustrate a wide variety in architectural style as evidence of the adaptability of our metal windows to all classes of buildings.

NEW LAW COURTS, HULL — S. B. Russell & T. E. Cooper, Architects

HOPE'S METAL WINDOWS have the following features, all of which are essential to modern requirements:

1. They allow the maximum amount of light for the area of opening in the wall.
2. Fireproof construction.
3. They are proof against distortion under any conditions of temperature and climate.
4. Any system of opening can be applied to allow of simple and easy adjustment to suit the needs of various people.
5. Absolute exclusion of rain and wind when closed.



Sectional detail through one window, one-eighth full size.

NEW LAW COURTS, HULL
Elevation of one Bay

The detail on the opposite page shews the clean finish of the steel work against the stone on the outside and plaster finish inside, giving the maximum opening for light and dispensing with the need of clumsy and inflammable wood linings.

These features may be compared with the disadvantages of wooden sliding sashes:

1. The area of light is greatly restricted by the necessary size of timbers.
2. They are highly inflammable both from inside and outside.
3. In wet weather they are liable to stick or jam, and in dry weather to rattle and open at the joints, while there is frequent trouble from the breakage of cord.
4. They are difficult to open and close, and only open in one way (by sliding up and down). Also, they cannot be opened with any comfort in windy and wet weather.
5. They are not weather-tight when closed.

Wooden sashes are necessarily clumsy in appearance, and their employment involves strict limitations as to height and width. For purposes of comparison with our metal windows we will take an opening 9ft. high by 4ft. 6in. wide, such as the first floor windows of the new Law Courts at Hull. The obstruction to light given by the steel frame and bars in this opening is 50 per cent. less than it would be if wooden sliding sashes were used, so that to obtain the same amount of light as with the steel windows, the openings would have to be made considerably larger and the proportions of the building spoiled. In case of larger windows of less convenient shape the comparison is even more in favour of metal.

ETON MEMORIAL, WINDSOR — L. K. Hall & S. K. Greenslade, Architects

NEW TOWN HALL & LAW COURTS CARDIFF — H. V. Lanchester & E. A. Rickards, Architects

CARDIFF TOWN HALL.—Large window over entrance

These fine buildings at Cardiff have been fitted throughout with special steel windows and casements to the architect's designs. The windows are a striking example of the many advantages of Hope's metal windows as compared with wooden windows for buildings of this character.

STOCKPORT TOWN HALL — Sir A. Brumwell Thomas, Architect

BIRMINGHAM UNIVERSITY Sir Aston Webb, R.A., & E. Ingress Bell, Architects
(*Over* 4,000 *Hope's casements in this contract*)

GERRARD TELEPHONE EXCHANGE, LONDON Leonard Stokes, Architect

ANCHOR LINE BUILDINGS, GLASGOW — James Miller, Architect

Steel casements (section 1) to the ground floor windows. 1⅝ inch section steel sashes to side elevations and areas.

Bronze lettering and shields also by H. Hope & Sons Ltd.

MAPPIN & WEBB, LIMITED
Oxford Street, LONDON, W.

John Belcher, A.R.A., Architect

This building is a good example of the use of Hope's Section 1 best quality casements in large plate glass windows.

The casements on the first floor are of solid bronze metal, while those on the upper floors are of steel. They are made in pairs folding without mullion (see details on pages 32 and 33), with transome casements operated by screw opening gear.

The accompanying photograph of the Liverpool Cotton Exchange shews a good example of the use of our cleaning casements for very high buildings. These casements afford an easy means of cleaning the outside of the glass from the inside, without danger to the window cleaner, while there is a large saving on the annual cost as compared with cleaning glass from the outside by ladders or other appliances.

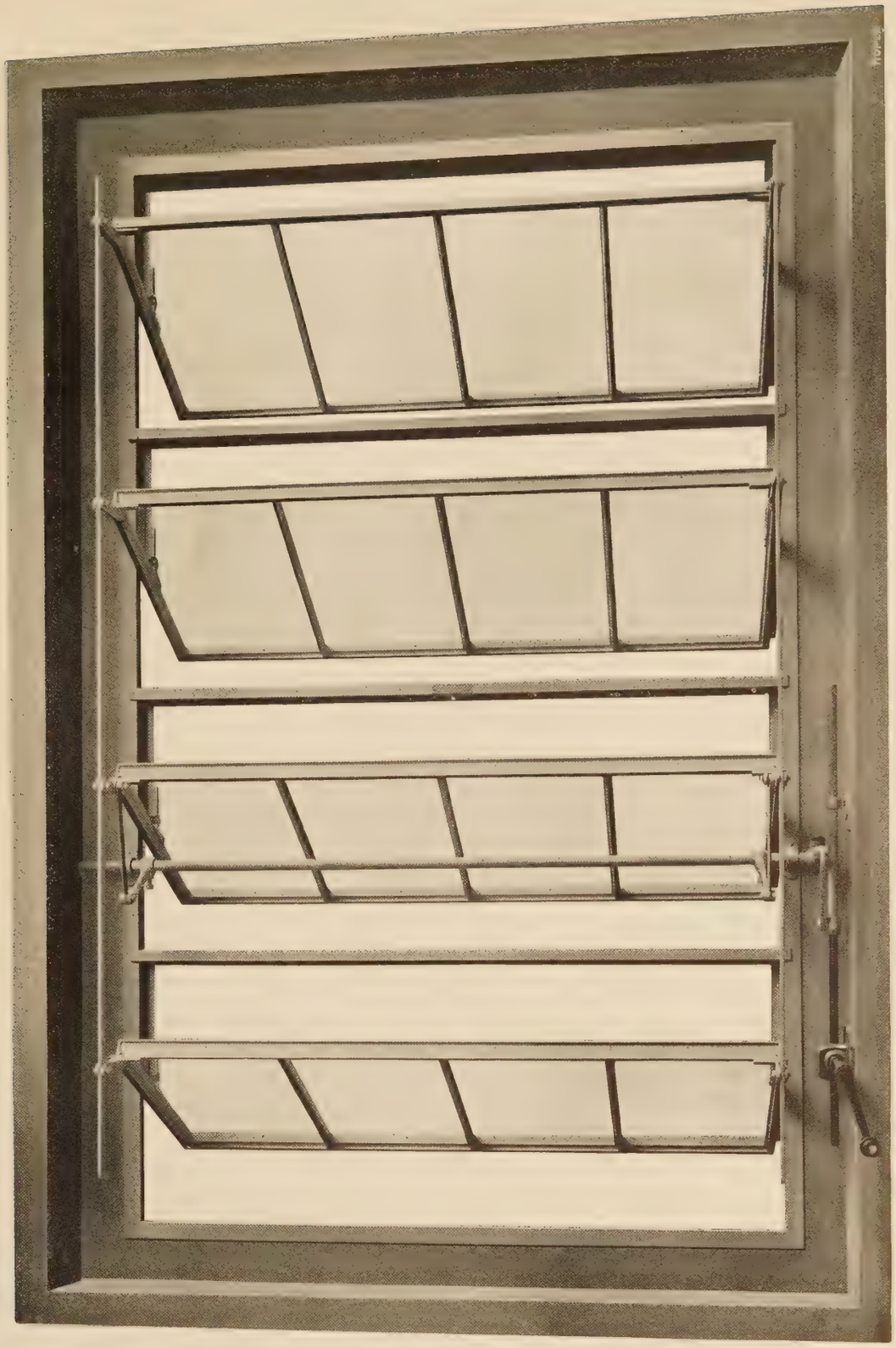
LIVERPOOL COTTON EXCHANGE H. A. Matear & F. W. Simon, Architects

LIVERPOOL COTTON EXCHANGE.—View of a portion of the side elevations, shewing metal construction with Hope's "cleaning" casements.

In large cities too much importance cannot be attached to buildings being fire-proof from the outside. The use of metal windows, preferably glazed with wire glass, renders a building absolutely proof against fire from the outside. The truth of this statement was demonstrated beyond doubt in the recent conflagration at San Francisco, where many buildings fitted with wooden windows were destroyed by fire from adjacent buildings, while other buildings with metal windows were kept intact although surrounded by fire on all sides.

Messrs. Guinness' new building is an example of the application of Hope's steel louvre windows to a brewery. The requirements for this work demanded that the whole area of each window should be opened easily and safely for ventilation, that the weather should be excluded when closed, that the construction should be fireproof, and that the whole of the outside of the glass should be cleaned with safety from the inside.

GUINNESS, SON & CO., LTD., STOUT BREWERY, DUBLIN



This INTERIOR VIEW shews how these requirements have been met. Each window is operated with a set of gear which turns the louvres right over so that the outside of the glass faces the inside of the room. The louvres can be left at any degree of opening with perfect safety, as they can only be moved by means of the handle operating the gear, which is self-locking in any position.

Detail drawings and estimates will be forwarded for windows and gearing of this type upon receipt of enquiry.

Warehouse for SPALDING & HODGE LTD.
Russell Street, Drury Lane, LONDON

W. H. Harrison & Melville S. Ward
Architects

GEORGE DIXON SCHOOLS
CITY ROAD, BIRMINGHAM

H. T. Buckland & E. Haywood-Farmer, Architects

DEBENHAM & FREEBODY, LIMITED
WIGMORE STREET, LONDON

J. S. Gibson, Architect

CLOPTON MANOR, THRAPSTON
NORTHAMPTONSHIRE

Gotch & Saunders, Architects

TURNBERRY HOTEL, AYRSHIRE

James Miller, Architect

"BYSTOCK," DEVONSHIRE — W. H. Ansell, Architect

3 PRITCHETTS ROAD, EDGBASTON — Cossins, Peacock & Bewlay, Architects

LYMPNE CASTLE, KENT — R. S. Lorimer, Architect

LYMPNE CASTLE, KENT — R. S. Lorimer, Architect

NEW BERWICK HOUSE, WILTSHIRE — Detmar Blow, Architect

This house is fitted throughout with casements of our section 2, fitted with the "Broadway" latch and quadrant as illustrated on page 60. Leaded lights in crown glass.

BARTON HARTSHORN MANOR HOUSE — R. S. Lorimer, Architect

AMESBURY ROAD, MOSELEY — W. H. Bidlake, M.A., Architect

MINTERNE HOUSE, DORSETSHIRE — Leonard Stokes, Architect

The casements throughout this building are solid bronze metal with leaded lights in patent plate. (This is of the same thickness as sheet glass, but being flattened and polished does not distort the view).

The transome casements were specially made to the architect's design, and afford an excellent means of ventilation without interfering with blinds and curtains when open.

NAILSEA COURT, SOMERSET — R. Milverton Drake & John M. Pizey, Architects

BEAMISH HOUSE, ALBRIGHTON — Bailie Scott, Architect

"HALLYBURTON," COUPAR ANGUS — R. S. Lorimer, Architect

"THE SHEILING," CHALFONT ST. GILES — Forbes & Tate, Architects

POLLARDSWOOD PLACE, CHALFONT ST. GILES — Forbes & Tate, Architects

POLLARDSWOOD GRANGE, ENTRANCE LODGE — Forbes & Tate, Architects

"THE MOUNT," WOLVERHAMPTON — Grayson & Ould, Architects

HOUSE AT BILBAO, SPAIN — F. Chatterton & W. E. Couch, Architects

THE GARDEN VILLAGE, HULL — Runton & Barry, Architects

THE WHITE HOUSE, BRIXTON HILL, LONDON — S. J. May, Architect

MOXHULL HALL, WISHAW — Ewen Harper & J. A. Harper, Architects

DRAWING ROOM, SOUTH WRAXALL MANOR HOUSE.

The casements and leaded lights throughout this famous old building were entirely re-made upon the old models by HENRY HOPE & SONS LTD.

NOTE. *We call attention to this photograph as illustrating the application of curtains to an exceptionally large mullioned window.*

"THE SUN-DIAL," LYME REGIS, DORSET — Arnold Mitchell, Architect

We have pleasure in publishing the following letter, as a striking testimonial of the weather-tight qualities of our casements under most trying conditions. The closeness of these windows to the sea-shore will be appreciated from the photograph, which shews the reflection of the waves in the glass.

"39 GREAT MARLBOROUGH STREET, LONDON, W., *March 22nd*, 1904

"*Dear Sirs,—You are welcome to take a photograph of "The Sun-dial," at Lyme Regis. I have spent much time there this winter, and am pleased to say that both your Casements and your Leaded Glass have been in every way satisfactory. The house is within only a few feet of the water, and after a heavy gale the windows are all covered with salt from the sea-water blown against them. They have, however, stood perfectly, and have given me no trouble at all.*

I have used many various casements and much leaded glass, but have never had work so good as in this little house. I feel sure you will be glad to know how pleased I am with what you have done.

"*Faithfully yours, ARNOLD MITCHELL.*

"*Messrs. Henry Hope & Sons Limited, Birmingham.*"

As we frequently receive enquiries as to the best method of applying blinds and curtains to a casement window, we illustrate the above as typical of a simple arrangement which we recommend. The light curtains next to the window are used in daytime to exclude the rays of the sun, while the inner curtains, which are of heavier material, are drawn at night.

We supply suitable rods and brackets in brass or bronze, and will furnish detail drawings and estimates upon receipt of enquiry.

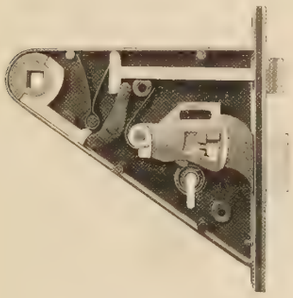
HENRY HOPE & SONS L^D

DOOR FURNITURE

The scarcity of really good door furniture has encouraged us to develop and place upon the market an entirely new range of fittings. The utility of each article has been made an absolute condition, and the ornamentation is in all cases suitable to the material and its use.

The engineering resources at our command have enabled us to give a mechanical accuracy hitherto not employed in work of this class, with the result that we are able to offer a combination of appropriate design with the lasting qualities of mechanical perfection.

HOPE'S MORTISE LOCK 822, iron case, brass working parts
1 lever 5/-, 2 levers 5/6



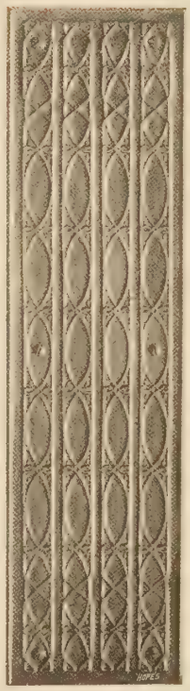
Reg. No. 522240
This lock has a reversible bolt and its special shape saves labour in fixing.

FURNITURE 853
Bronze 5/- per set
Brass 4/3 per set

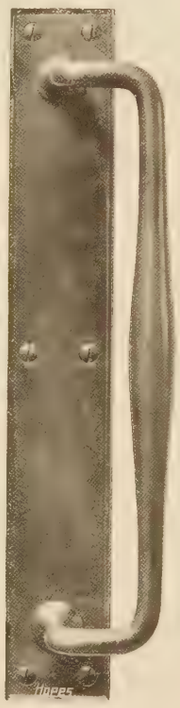
RIM LOCK 690, 6in. by 3in.
Bronze 20/- each
Brass 18/- „
FURNITURE 619a
Bronze 10/6 each
Brass 9/6 „

617

618



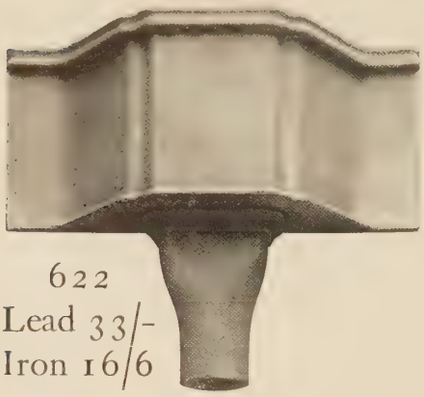
626
Finger plates of various designs and sizes
From 3/- each



678
Grip handles
From 4/- ea.

The above illustrations are only given here as typical of the work of the department. Catalogue and prices of all kinds of door furniture, wood casement fittings, etc., upon application.

HENRY HOPE & SONS LD
CAST-LEAD & IRON RAIN WATER HEAD PIPES, GUTTERS, *Etc.*



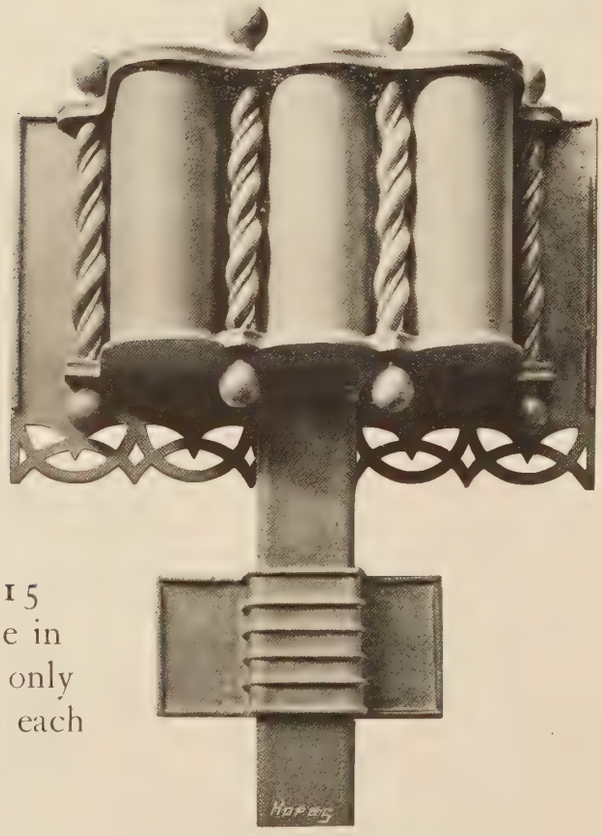
622
Lead 33/-
Iron 16/6

635
Lead 16/9
Iron 10/-

Pipe 607, 4in. by 3in., 6 ft. lengths with socket & ears 32/- per length

636
Lead 39/-
Iron 22/6

637
Lead 43/-
Iron 25/6



615
Made in lead only
95/- each

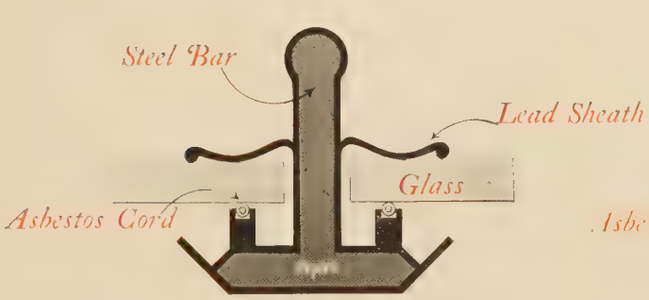
600
Made in lead only
50/- each

The above 1½ in. scale illustrations are typical of the work of this department. Special catalogue with prices will be forwarded upon application.

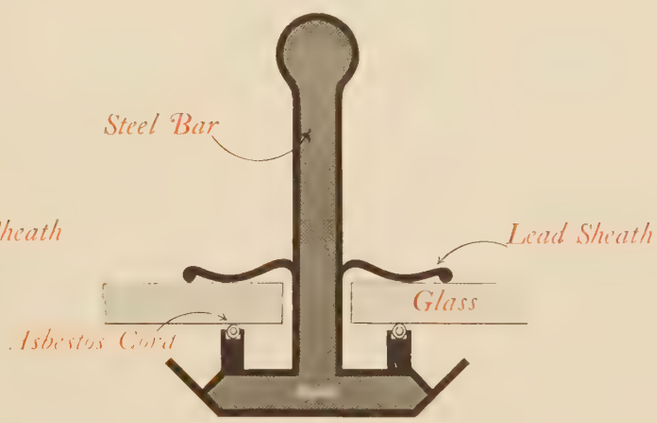
HOPE'S
PATENT GLASS ROOFING
WATERTIGHT, DUSTPROOF, IMPERISHABLE

INTERIOR VIEW of a portion of our new factory at Smethwick, shewing Hope's glazing and roof construction work.

The steel bar is galvanized before receiving the lead sheath, and no cutting or drilling is afterwards done to the bar.
The ends of the lead sheath are sealed, so that no moisture can get to the steel core.
The lead sheath is not perforated for the fixing shoes, but these shoes are firmly secured to the bars by Hope's Patent System, so that each bar forms a strut for the roof.



Section B1 bar to carry 7 feet



Section O3 bar to carry 10 feet

FULL SIZE SECTIONS OF BARS

HOPE'S
PATENT GLASS ROOFING

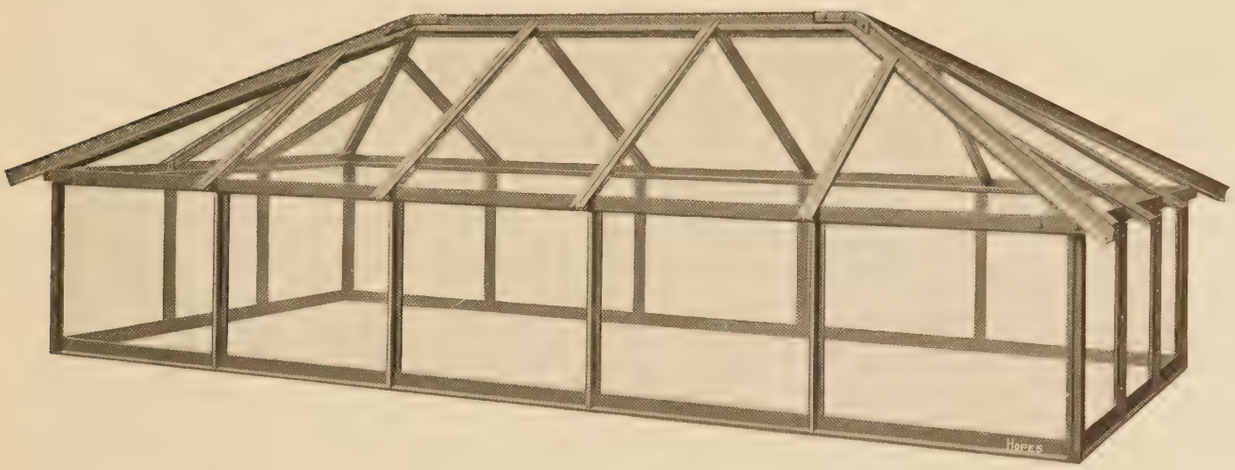
BLACKLER'S NEW PREMISES, LIVERPOOL — W. Aubrey Thomas, Architect

The whole of the work to the above, including wood purlins and plates, steel lantern lights and opening gear, and 11,000 *feet of Hope's patent glazing with all-lead flashings, was prepared and erected complete in* 6 *weeks from the date of order.*

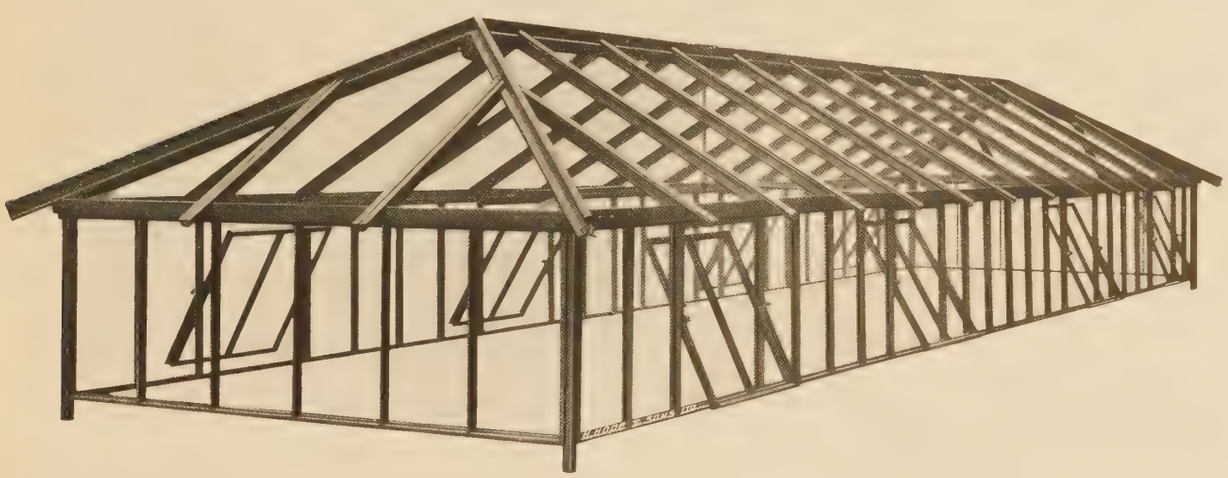
NOTE.—Our new sections of bars shewn on page 115 are the result of careful improvements in detail which we have made during the last 15 years, but we have never during this period departed from the main principle of having *no external fastenings, and no zinc or unprotected steel*, and while there are large areas of much advertised glazing of comparatively recent construction which are now decayed and corroded beyond repair, and causing the building owners incessant trouble and expense, Hope's patent system has yet to be shewn to have failed in any vital point.

Our Patent Glazing Catalogue, with details shewing various forms of roofs, will be forwarded upon application.

HOPE'S
LANTERN LIGHTS



View of lantern light with fixed sides, constructed entirely of steel with our patent lead covered glazing bars on roof.



View of lantern light with swinging ventilators in sides, constructed entirely of steel, with our patent lead covered glazing bars on roof.

NOTE. We are specialists in the construction of lantern lights with steel framing. They are light, strong and fireproof, and specially suitable for flats on concrete buildings.

Designs and estimates upon application.

HOPE'S
PATENT GLASS ROOFING & STEEL CONSTRUCTION

ROOF OVER STABLE YARD AT BUCKINGHAM PALACE *for* H.M. THE KING
Constructed throughout by Henry Hope & Sons Limited.

NOTE.—We supply designs and estimates free of charge, and will forward upon application our patent glazing catalogue containing full details of various forms of roofs.

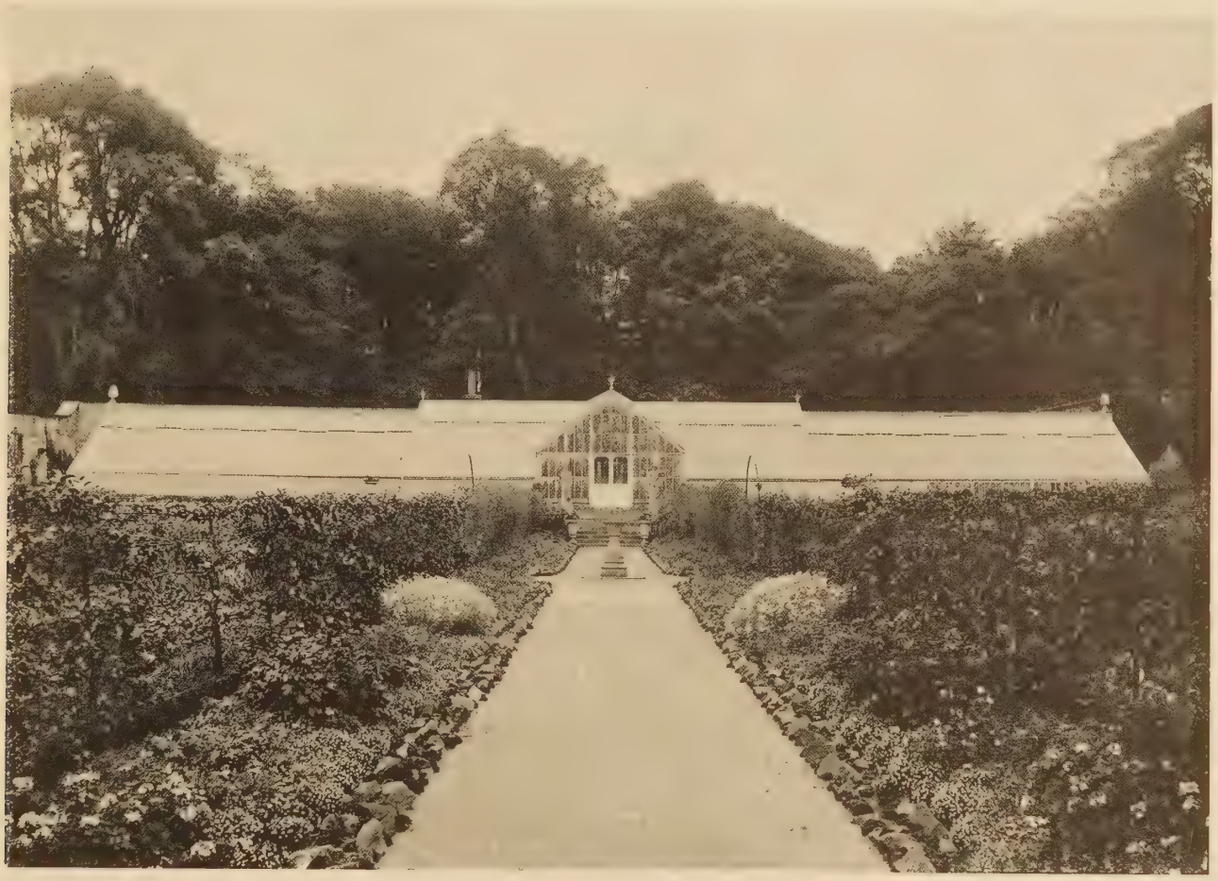
HENRY HOPE & SONS LD
HORTICULTURAL BUILDINGS

We have pleasure in calling attention to this department which is the original business founded in 1818.

The large number of glass houses in every county in the United Kingdom are standing proofs of the general excellence which has always distinguished our work.

The knowledge and experience we have gained in a period of over eighty years is entirely at the disposal of our customers. We furnish designs and estimates without charge, and we are always prepared, at a few days' notice, to send one of our staff to make a survey and take particulars of work for which an estimate is required.

The carpenters' shop and fitting shop in our new factory at Smethwick are equipped with the best machinery for the manufacture of all kinds of glass houses, and enable us to handle large contracts in the shortest possible time. All constructional work is fitted, erected, and marked before being sent away, so that the building can be cleanly and rapidly erected after delivery.



Range of Plant and Fruit Houses at Glynliffon, Caernarvon.

Book of photographs of work executed upon application.

HENRY HOPE & SONS, LD
HEATING & VENTILATION

We are experts in all branches of modern heating and ventilating science. We employ a special staff of engineers and are prepared at all times to advise and tender for Heating, Ventilation, and Hot Water Service upon the most modern methods in any class of building irrespective of size, and we guarantee the results of any work undertaken.

In view of the fact that buildings differ so greatly in construction, individual treatment is necessary, and, unless a thoroughly competent firm of engineers is employed, the apparatus installed may prove unsuitable.

We specially call the attention of architects to the fact that we are licensees for the "Cable" System of Low Pressure Hot Water Heating.

This System has many advantages over the ordinary method of hot water heating, and is specially suitable for buildings where preparation has not been made in the first place for an apparatus. The boiler may be put in any position, so that no excavation is necessary, and the pipes used are of such small diameters that a minimum of cutting and builder's work is required.

Our offices, 55 Lionel Street, Birmingham, are heated by this method, and the apparatus has been specially designed to shew the possibilities of this novel system.

We shall be pleased at any time to shew this apparatus to our clients, and to explain its working.

DEBENHAM'S LTD., Oxford Street, LONDON. J. S. Gibson, Architect.
Heating and Ventilation (Vacuum Steam and Plenum Systems), also Hot Water Service.

LIST OF CATALOGUES

Metal Casements, Sashes &
Opening Gear
Horticultural Buildings &
Heating Apparatus
Cast & Wrought-lead Work
Leaded Lights & Stained Glass
Door Furniture &
Fittings for Wooden Casements
Hope's Patent Glass Roofing

PRINTED AT THE KYNOCH PRESS.